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Taxonomical remarks on Juncus alpinus and some related species.

By Bertil Lindquist.

This investigation has been carried out owing to the discovery of *Juncus atricapillus* Drejer in Sweden (Lindquist 1930). My attempt to analyse the *Juncus*-forms occurring in the localities in which this species was found made me realize the necessity of basing a determination of the taxonomical value of these forms on a general investigation into the system of other types related to *J. alpinus* Villars. I therefore undertook an investigation into the species *J. alpinus* Villars, *J. anceps* Laharpe, *J. atricapillus* Drejer ap. Lange, *J. fuscoater* Schreber, *J. nodulosus* Wahlenberg, *J. Marshallii* Pugsley and *J. alpestris* C. J. Hartman.

For this purpose fresh material was studied in numerous localities in different parts of Sweden, Norway and Denmark. Dried specimens have been studied in the herbaria at Bergen, Berlin-Dahlem, Cambridge, Göteborg, Kew Gardens, København, Lund, Oslo, Oxford, Stockholm and Upsala (the Botanical Museum and the Institute of Plant Biology), besides which I have had at my disposal a large body of *Juncus* material from Dr. G. C. Druce's private herbarium in Oxford. Finally *J. alpinus* has been lent to me from the Villars herbarium at the Museum d'Histoire Naturelle in Grenoble. — Plants have been isolated for genetical purposes in the Botanical Garden at Lund.

Juncus alpinus Villars. When Villars described *J. alpinus* in 1787 he identified it with Haller's *Juncus foliis fistulosis, articulatis, panicula simplici, glumis aristatis*

(Haller 1768) and with Scheuchzer's *Juncoides alpinum folio articulato* (Scheuchzer 1719). It may therefore be of some interest to inspect these forms described by Haller and Scheuchzer.

Haller's *Juncus foliis fistulosis* etc. belongs to the *J. articulatus*-group and seems to be a rather low form. It has a simple panicle with up to six 1-2-flowered umbels. The perianth segments have a chestnut-coloured margin and are mucronulated: »longo mucrone ut aristata dici possint». Although the description is fairly detailed it affords very little evidence to prove that Villars' *J. alpinus* is identical with Haller's *Juncus foliis fistulosis* etc. This assumption is however contradicted by Haller's detailed description of the perianth segments, which in all probability are to be regarded as characteristics of a *J. lampocarpus*-like form. I do not think we can justifiably assume this *Juncus* as described by Haller to be identical with what is now called *J. alpinus* Villars.

Scheuchzer's description of *Juncoides alpinus folio articulato* on the whole agrees well with Haller's above-mentioned forms. Scheuchzer's type is also articulate and the panicle is slightly branched and simple. The flowers, the length of which he states to be 2,5 mm. or a little more, are placed two or three together in small umbels and terminate in a pointed thin mucro. This description does not fully clear what it is intended to describe: the size of the flowers as well as their number in the umbels seem to point to *J. alpinus* Villars, whereas the observation that the flowers end in a pointed mucro would rather indicate that some *J. lampocarpus*-form might have been in the author's mind. In subsequent investigations, therefore, it is no doubt advisable not to attach undue importance to references to the above-mentioned descriptions by Haller and Scheuchzer in the identification of *Juncus*-species and *Juncus*-forms.

In his Histoire des Plantes de Dauphiné II (1787)

Villars, as mentioned above, describes *J. alpinus* under reference to Haller and Scheuchzer. In the French description of his new species he characterizes it as a low, articulate *Juncus* with a simple panicle and with dark flowers with a lanceolate mucro. Villars' description of the capsule, which is said to be short and more obtuse than that of *J. articulatus*, is of decisive importance in identifying the plant. Villars' new species is a mountain form occurring »sur les plus hautes montagnes du Briançonnois, sur de Col l'Echauda», and at other places in the mountains of Dauphiné. — His diagnosis in which he lays stress upon the character of the capsule is quite acceptable.

Sprague (1928) has however pointed out that already in the first volume of Villars' Histoire des Plantes de Dauphiné (1786, p. 378) Chaix published a description of a *Juncus alpino-articulatus*, which seems to be identical with the *J. alpinus* described by Villars himself in the following year. Chaix refers to Haller 1321, i. e. to *Juncus foliis fistulosis, articulatis, panicula simplici glumis aristatis*, but gives no further description of the plant. Sprague now points out that the reference to Haller may be considered sufficient to show that the plant described by Chaix is identical with Villars' *J. alpinus*, and, Chaix' name being one year older than that of Villars, he considers that *J. alpino-articulatus* Chaix ought to replace *J. alpinus* Villars. This consideration has since been accepted by Druce (1931) and Pugsley (1931). One objection to the adoption of Sprague's name *J. alpino-articulatus* is that the only definite attribute Chaix has given *J. alpino-articulatus* is the reference to Haller 1321. It is probably not advisable to base an identification of Chaix' species merely on a reference to an author who in his nomenclature is pre-Linnean, all the more so as Haller's diagnosis as quoted by Chaix might rather refer to some dwarfish form of *J. lampocarpus* than to *J.*

alpinus Villars (see above). SPRAGUE's attempt to replace VILLARS' *J. alpinus* by the older *J. alpino-articulatus* cannot therefore be considered to be satisfactorily grounded.

v. PAULA SCHRANK in his Bavarian Flora gave a good description of VILLARS' species, which was called *J. geniculatus*. — As to other names given to this plant, without any considerable value for the nomenclatural investigation, I refer to the synonyms on page 352. It need only be mentioned that CLAIRVILLE gave a description in his Manuel d'Herborisation en Suisse et en Valais (1811) calling the species *J. mucroniflorus*. *J. mucroniflorus* has been identified by a great number of authors (e. g. BUCHENAU 1906) with the mountain-form of *J. alpinus* Villars and thus they have done a special variety of it. CLAIRVILLE's description was very vague:

A. Capsule triloculaire	a. Feuilles articulées
.....	
J. mucroniflorus	Petales mucronées
1321 Alpinus	Les Alpes. Éte.

This description deserves the same criticism as CHAIX': the only fixed point seems to be the description of the perianth segments which indeed do not quite agree with the conditions to be found in *J. alpinus* Villars.

VILLARS' description of *J. alpinus* became known in Sweden rather late; it was noticed in WAHLENBERG's Flora Suecia (1824) and in the third edition of HARTMAN's Handbook on the Scandinavian Flora (1838) as a synonym for *J. nodulosus* or *J. ustulatus* β *alpestris*. In the fourth edition of HARTMAN's Flora (1843) VILLARS' name is applied to the entire species with the note: »VILLARS name is now generally given to this species and it should therefore be accepted as being the oldest». — Thus *J. alpinus* Villars replaced the earlier names *J. nodulosus* Wahlenb., *J. rariflorus* C. J. Hartman, *J. alpestris* C. J. Hartman, *J. ustulatus* Hoppe etc.

Fig. 1. Map showing the distribution of *Juncus alpinus* Vill. in some north-west European countries

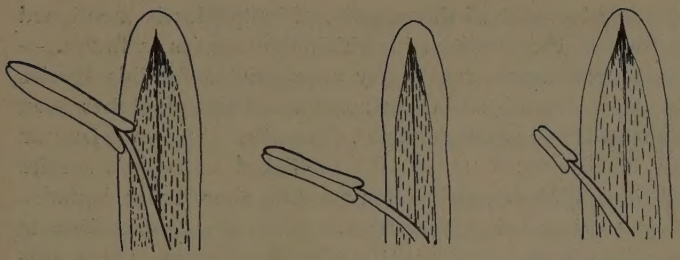
Juncus alpinus Villars has often been regarded as a low alpine-form in the long series of articulate *Junci* with obtuse inner perianth segments, and many would retain the name for such forms only. Surely it would be best to let the name and the description refer rather to forms having more obtuse capsules and obtuse inner perianths, differing widely from forms with more acute capsules and acute perianth segments. It is hazardous on the basis of the localities named in the description of *J. alpinus* or on Villars' original specimens to try to form any clear idea of the *J. alpinus* type that Villars had in mind when giving

his description, for different types occur in these localities, and the specimens in VILLARS' herbarium, which may be assumed to be original specimens, seem to possess quite different features.

J. alpinus Villars is thus the first acceptable name given to forms belonging to the series of *Junci* under discussion, and therefore it might be given priority as the name of the species in the classification of these plants.

The main type of what is now more specifically called *J. alpinus* in Scandinavia is generally a rather large type with a floriferous stem 10—40 cm. high. The cyme is usually richly branched with the branches emanating from two points situated at different heights on the stem. Specially characteristic are the often very large umbels with almost sessile flowers. As in all other forms studied here, the outer perianth segments are obtuse with a marked mucro, while the inner ones are obtuse and without any mucro. The perianth generally reaches to more than $^3/_4$ of the length of the capsule. The anthers are rather short, 0,4—0,7 mm, the capsule, varying in colour and generally having a short mucro, 2,6—3,1 mm. long, 1,3—1,5 mm. wide and tapering somewhat rapidly.

With regard to the distribution of this type, it can be said that it seems to be fairly common in middle Europe as well as in south-eastern Scandinavia. As to the details of the Scandinavian distribution it may be pointed out that the species is rare in Denmark, with a main distribution in Sjælland and northern Jutland, but it is not uncommon in Scania, in Oeland, on the Oestgöta- and Västgötaplains and near Stockholm. In central and northern Sweden it is very rare, and there its occurrence might be connected with the genesis of hybrid forms within some northerly *J. alpinus*-types (*J. alpestris*). — In Britain *J. alpinus* — taken in the narrower sense — occurs in a very distinct form, with dark-brown flowers and wery small capsules down to 2,1 mm long. It has been found at some



GRETA DU RIETZ del.

Fig. 2. Anthers (and perianth segments) of *Juncus anceps* Laharpe from Palavais, France (to the left), *Juncus anceps* var. *atricapillus* Buch. from Skagen, Denmark and *Juncus alpinus* var. *alpestris* (C. J. Hn) C. Hn. from Dovre, Norway (to the right). Enlarged c:a 18 ×.

places in Scotland and in one district in the north of England, where Dr. DRUCE discovered it in 1903. About these British forms it may be said that those gathered at Ben Laiogh in Argyllshire are closely related to *J. alpestris* C. J. Hartman.

J. alpinus f. nanus is further described on page 353. This is a very small form, its panicle reduced as a rule to one few-flowered umbel. However this form must to a certain degree be heterogeneous, even containing forms of the varieties described in the following, which are distinguished from *J. alpinus* mainly by the type of panicle and the size of the umbels, but which do not show any divergences in the type of capsule.

Juncus anceps Laharpe. In 1827 JEAN DE LAHARPE described *J. anceps* Nob. in Essai d'une Monographie des vraies Joncées. In discussing its relation to *J. acutiflorus* and *J. ustulatus* he points out that the perianth segments of *J. anceps* show some agreement with those of *J. ustulatus*, while the capsule of *J. anceps* most resembles that of some forms of *J. acutiflorus*, though it is smaller. It is further to be gathered from LAHARPE's description that the new species includes two types distinguished by differences in

the development of the panicle. Montpellier is mentioned as one of the localities in which this species is found. — LAHARPE's name was largely appropriated for this species by later botanists, but in some cases the plant has been identified with SCHREBER's *J. fuscoater*. COSSON & DURIEU DE MAISONNEUVE (1854—67) published LAHARPE's species in Flore d'Algérie, when for the first time it was degraded to a variety being referred to the species *J. sylvaticus*, to which it is but very slightly related. RICHTER (1890) placed it as a variety under *J. atricapillus* Drejer. BUCHENAU, who considers *J. atricapillus* and *J. anceps* to be not very widely distinct from one another, gave *J. anceps* as a name including both species and called LAHARPE's species α *genuinus* and DREJER's β *atricapillus*.

If, then, this plant is to be regarded as a species, LAHARPE's name has priority, but if we have to make it a pure variety it has to be called var. *anceps* with reference to COSSON & DURIEU.

J. anceps is very closely related to *J. atricapillus*, as has been pointed out by BUCHENAU (1883), who describes the differences between them very vague by characterizing the variety α *genuinus* merely as having »inflorescentia decomposita, ramulis capitula pluries superantibus» while the var. β *atricapillus* is said to have »inflorescentia decomposita, . . . ramuli plerumque capitulis paullo longiores»; but this hardly explains why BUCHENAU distinguishes these two types as varieties. — There are however distinct differences between LAHARPE's and DREJER's species, which are to be found mainly in the length of the anthers and in the length and size of the capsule, as also in the whole stature of the plant. The height of the stem of *J. atricapillus* is 15—30 cm. and not above 40 cm., that of *J. anceps* is 20—60 cm., but then the stem of the latter species is much more robust. Moreover, the panicle of *J. anceps* is larger. The anthers of *J. anceps* are generally longer than those of *J. atricapillus* (see the scheme),

the latter standing in this respect between *J. anceps* and the other types under discussion here. The capsule of *J. anceps* is generally smaller than that of *J. atricapillus;* moreover, it has a lighter brown colour, whereas the colour of the capsules of *J. atricapillus* is dark-brown or brownish-black.

But in spite of all these characteristics numerous intermediate forms between these two species can be found; a fact, that might undoubtedly give rise to the conception that these types are not to be regarded as two different species; this conception is indeed confirmed by most systematic botanists who have dealt with these two types. Compared with *J. alpinus, J. fuscoater* etc. *J. anceps* is on the other side well differentiated and in view of the pure type of *J. anceps* there is no reason to keep these plants within the same species. But this question becomes still more complicated when it is realized that *J. atricapillus,* which is not very widely separated from *J. anceps,* shows the closest relation to *J. alpinus, J. fuscoater* and *J. nodulosus.* The question of *J. anceps* being regarded as a different species from *J. alpinus* will not therefore be discussed here, but will be dealt with at length in the next section.

The distribution of *J. anceps* is strictly confined to south-western Europe and West-Mediterranean districts of Africa. It occurs in France, Algier and Tunis and is also reported from Jugoslavia.

Juncus atricapillus Drejer ap. Lange. G. F. W. Meyer (1836) seems to have first noticed this plant when publishing a description of the sub-species α *coarctatus* of *J. fuscoater.* To the Latin name he adds a German one, »Engspirrige, schwarzbraune Simse» with the remark that the new subspecies occurs on certain of the East-Frisian islands; there is however no detailed description of the plant. In spite

of the very characteristic German name and the very clear reference to localities typical for the above named species, the name given by MEYER cannot be accepted though it might be considered as a nomen nudum. Two years later DREJER (1838) mentions in KRØJERS Tidskrift the discovery of a *Juncus*-form on the west coast of Jylland. The notice is very short and contains merely the statement that DREJER had seen a *Juncus* with black flowers, which people in the region called »Sortehoveder» (Blackheads). For this plant he proposes the name *J. atricapillus* and promises later on to give a more detailed description of the plant. This description was in fact published in LANGE's Haandbog i den Danske Flora (1851) under the name *J. atricapillus* Drejer. DREJER's first communication on the subject as well as MEYER's name *coarctatus* must be regarded as unsatisfactory, so that the description of this plant given in 1851 is the first acceptable one. In the second edition of the same flora (1856—58) a further differentiation of *J. atricapillus* was made by LANGE, who remarks that the new species occurs in two forms, f. *congestus* with a shortly branched and rich-flowered panicle and f. *sparsiflorus* with longer and thinner branches and fewer flowers. But when later on LANGE again describes and reproduces these types in Flora Danica (1871) he expresses an essentially changed view of the form *sparsiflorus*, which is now only a name for especially gracile types with a reduced number of panicle-branches (se fig. 3). The other forms, which in 1851 were placed under f. *sparsiflorus* are now referred to *J. atricapillus*. In many cases this has caused confusion in the determination of these forms. I think therefore that it is better to follow LANGE's latest classification and to give only the extreme varieties of the species form-names. — Prior to the first acceptable description referred to above, ELIAS FRIES (1842) had described this type under the name *J. atratus*, thus making the earliest real

diagnosis of the plant. But already before that KROCKER had given the name *J. atratus* to another species.

During the latter part of the 19th century, especially since *J. anceps* Laharpe had become better known, *J. atricapillus* Drejer was to a large extent accepted as a variety of *J. anceps* (BUCHENAU 1883, 1890, ASCHERSON & GRAEBNER 1904) less often as a sub-species of *J. lampocarpus* or *J. alpinus* (C. HARTMAN 1879, KROK 1889). But in recent Scandinavian literature (NEUMAN & AHLFVENGREN 1901, RAUNKIAER 1922 and LINDMAN 1918, 1926) it is regarded as a distinct species.

DREJER's species differs in many respects from *J. alpinus* Villars. The branches of the panicle are very short in comparison with those of the latter, and the umbels are placed at two well-defined levels. The essential difference between them lies, however, in the development of the flower and capsule. The anthers of *J. atricapillus* are long, 0,6—0,9 mm. as compared with 0,4—0,7 in *J. alpinus*, a characteristic that is visible in the two very good reproductions of these plants in Flora Danica (nr. 2127 and 2771), though no attention has ever been paid to this fact. Further, the capsule of *J. atricapillus* is smaller, more scrobiferous and has a more well-defined mucro 0,2 mm. long. — On the other hand *J. atricapillus* and *J. anceps* are often difficult to distinguish, a point that has been discussed above.

In 1925—29 plants of different *J. atricapillus*-types were cultivated at the Botanical Garden at Lund in order to give a rough idea of the variation of this species in its localities in Scania. Seeds from non-isolated *J. atricapillus*-plants of different types were collected at Dagstorp in Scania in the autumn of 1925 and were sown in pots in the Botanical Garden at Lund. The germination took place in the following spring, but the plants did not flower until the summer of 1927. A great number of these flowering plants were then isolated and a new generation of plants

C. G. Alm photo.

Fig. 3. *Juncus anceps* var. *atricapillus* Buch. The specimen to the left is f. *congestus* Lange from Agger Klit, Denmark; in the middle two specimens of the real var. *atricapillus* from Dagstorp, Scania, and to the right f. *sparsiflorus* Lange from the same locality.

was thus developed in the summer of 1929, after which no further experiments were undertaken.

When in 1925 seeds were collected from definite *congestus*-types (see fig. 3) the descendants were in two cases mostly *congestus*-forms, while in five cases *atricapillus*-forms and *sparsiflorus*-forms predominated, together with few-flowered forms, the type of which could not as a rule be satisfactorily determinated. In the about 20 cases in which the parent plants were *atricapillus*- or *sparsiflorus*-forms the descendants were of widely varying forms and included a number of *atricapillus* and *sparsiflorus*-forms, though also several forms more closely related to *J. fuscoater* as well as to *J. nodulosus*, both of which were present in the locality (see fig. 4). Particularly in certain cases in which the parent plants — although doubtless belonging to *J. atricapillus* — were less typical

C. G. Alm photo.

Fig. 4. *Juncus anceps* var. *atricapillus* Buch. from Dagstorp, Scania, in 1925 (to the left). The other specimens, arisen in 1927 from the former without isolation in the Botanic Garden, Lund, will give an illustration of the variation of this type at Dagstorp.

as regards the character of the flower and capsule, there were a great number of such intermediate forms. One of these forms, which was not uncommon in the locality at Dagstorp, has been called *J. fuscoater* f. *sub-atricapillus*; it occurred abundantly in the cultures.

From these plants a number of different types were selected and isolated under pergamine bags and thus became parent-plants to the above-mentioned second generation. — The descendants of these turned out to be far more homogeneous. In the cases in which the parent-generation was of *congestus* type or *atricapillus* type the descendants were dominated by the *atricapillus* type. Only very few panicles closely related to *J. fuscoater* were observed. *Sparsiflorus*-forms as a parent generation produced slightly more heterogeneous descendants (see fig. 5), among which were some forms closely related to *J. nodulosus* and *J. fuscoater*. In all these cases about a third of the plant

material consisted of small forms with a reduced panicle and many of these forms were hard to determine owing to their very starved condition. Morphologically several of these plants were assigned to *J. alpinus* f. *nanus*, although such specimens produced descendants whereof about half the number that flowered in 1929 turned out to be of the *atricapillus* type. The rest were *sparsiflorus* types or else followed the parent generation. Solitary panicles showed a tendency to large capsules and sometimes had distinctly pedicelled flowers, showing a clear transition to *J. nodulous*. In this case there were also observable a few *J. fuscoater*-like types.

I have had neither the time nor the means to carry out these cultures as a well-planned investigation of the genetics of the *J. atricapillus*-forms. The work is intended merely to give a preliminary idea of the constancy and homogeneity of these types in order to enable the forming of an opinion as to their taxonomical value.

The result of these cultures may be summarized as follows:

1. *Congestus*-forms have produced descendants possessing mainly *congestus*- and *atricapillus*-characteristics. Forms with a contracted panicle have shown a close relationship to *J. fuscoater* (*J. fuscoater* f. *subatricapillus* Neuman & Ahlfvengren).

2. The descendants of *atricapillus*-forms in the narrower sense, which have not been isolated during the flowering season have proved to be to some extent heterogeneous, the plants exhibiting characteristics typical of *J. fuscoater* and sometimes also of *J. nodulosus*.

3. The same applies to a still greater extent to the descendants of *sparsiflorus*-forms; in this case the descendants from isolated plants have been more homogeneous and more like the parent plants.

4. A great many small forms with highly reduced panicles have descended from *congestus*-, *atricapillus*- and *sparsiflorus*-forms. These small forms have in some cases

C. G. Alm photo.

Fig. 5. *Juncus anceps* var. *atricapillus* Buch. f. *sparsiflorus* Lange from the cultures in Lund in 1927 (to the left). The other specimens have arisen in 1929 from seeds of the former (isolated!) and will give an illustration of the variation under these conditions.

been very hard to determine; although derived from typical forms belonging to the species *J. atricapillus* and reproducing mostly *atricapillus*- and *sparsiflorus*-forms, the result of a morphological examination has given many of them the name *J. alpinus* f. *nanus*.

5. Neither sterility nor more obviously weakened fertility have been observed in the hybridogeneous material.

These cultures thus show that *J. atricapillus* at Dagstorp is a somewhat heterogeneous type, which apparently can be successfully crossed with the species *J. alpinus*, *J. fuscoater* and *J. nodulosus*, all of which occur in the locality. Here *J. atricapillus* often has shorter anthers and a somewhat larger and less acute capsule than usual. *J. atricapillus* seems therefore most intimately connected with these three species, and we are thus faced with the ques-

tion whether it might not be separated from them or regarded as a distinct species. Buchenau (1890) has already considered this point and is rather doubtful whether it is advisable to do so. Since then Ascherson & Graebner have also tried to solve this problem and have come to the following conclusion: »Wir fanden die Merkmahle und die Tracht aber doch recht eigentühmlich so dass wir es mit Buchenau vorgezogen haben ihn vorläufig noch als Art zu behandeln».

My own view on the question of whether it is most convenient for taxonomical purposes to regard *J. atricapillus* on the one hand and *J. alpinus, J. fuscoater* etc. on the other as belonging to the same or to separate species is as follows:

Their tendency to produce fertile hybrids when they are living in the same locality shows their very intimate relation and should justify their being assigned to the same species, but on the other hand, these two groups — *J. anceps* and *J. atricapillus* on the one side and *J. alpinus, J. fuscoater, J. nodulosus* etc. on the other — are distinctly separate in two important characteristics, viz. the length of the anthers and the size of the capsules, moreover their areas of distribution are widely separated from one another and, so far as I am aware, converge only in Sweden and Denmark. — I think therefore that there is more justification in separating them than in trying to assign them to one species. Thus the name of this species if governed by international rules will be *J. anceps* var. *atricapillus* Buchenau.

Juncus atricapillus has a marked atlantic distribution. Its most north-easterly situated localities are in Scania. Moreover it occurs from the northern part of Jutland in Denmark along its western coast towards the south, on the Frisian islands, along the coast of Holland and Belgium to France, northwestern Africa and the west Mediterranean

Fig. 6. Map showing the distribution of *Juncus anceps* var. *atricapillus* Buch. in north-western Europe.

region. — Concerning the Swedish localities it may be observed that its occurrence in Halland and in Gotland has long been known in literature, the reports having most probably emanated from Elias Fries. Indeed the specimens on which these reports are based are to be found in Herb. Upsaliense. The specimen from Gotland with a note written by Fries (in Gotlandia, Nyman) is *J. fuscoater* f. *subatricapillus*. The specimen from Halland have the following note by Fries »in maritimis Hall. 1829». It comprises one specimen of *J. atricapillus* and two spe-

cimens of *J. lampocarpus* var. *litoralis*, which latter form is very common in Halland. In Herb. Norm., for which Dr. POULSEN has collected Danish material of *J. atricapillus*, FRIES writes that 33 years before he himself had collected the plant between Falkenberg and Lyngåkra (a distance of about 50 km). Probably it will never be known whether these specimens, which are declared by FRIES to have been found on the coast of Halland were really collected there or somewhere else (NEUMAN & AHLFVENGREN 1901, AHLFVENGREN 1921). On the distribution map this locality is marked by an open circle because of its uncertainty.

J. fuscoater Schreber. In the year 1811 *J. fuscoater* was described by SCHREBER in SCHWEIGGER and KOERTE's Flora Erlangensis. The description, which is very clear, lays special stress on the semi-globular umbels of the new species and its black and shiny capsules, which end in a short mucro. In spite of this very good diagnosis the species was often confused and identified with far different *J. alpinus* types. During the early part of the 19th century the species received some other names; thus NOLTE described it as *J. microcarpus* and HOPPE as *J. ustulatus*. Later on, BRENNER's (1889) short mention of *J. alpinus* var. *arthrophyllus* may have referred to this species. It is mentioned as the variety *J. fuscoater* under *J. lampocarpus* by ČELAKOVSKY (1867), who refers to VILLARS' *J. alpinus*! There is no doubt, however, that ČELAKOVSKY intended to denote SCHREBER's and not VILLARS' species.

J. fuscoater is characterized by its black generally semi-globular and richly flowering umbels with practically sessile flowers, and further by its capsule which is generally just a little smaller than that of the normal *J. alpinus*, 2,3—2,8 mm. long, though often wider than the latter, 1,3—1,6 mm. wide. It is black and shiny and obtuse with a very well marked mucro 0,2—0,3 mm. long.

The late Conservator OTTO R. HOLMBERG found at

Fig. 7. Map showing the distribution of *Juncus alpinus* var. *fuscoater* (Celak.) Buch. in some north-west European countries. This type is lacking in Britain and Norway.

Nosaby in eastern Scania a large population of this plant mixed with WAHLENBERG's *J. nodulosus*. In the same locality he also found a great number of intermediate forms, which he considered to be hybrids between the two named types. His supposition was confirmed by researches into their fertility, from which it appeared that plants of *J. nodulosus* and of *J. fuscoater* showed complete fertility, while those of the intermediate types all showed a slightly but obviously reduced fertility. Similar conditions were found by the author in the north-western part of

Scania at a place in the parish of Hov, where the same types occurred together. In some cases I found the fertility reduced to less than 50 %. Our studies further showed that these plants considered as hybrids could not in most cases be morphologically distinguished from Scandinavian material of *J. alpinus* Villars. From the clear disposition of *J. nodulosus* and *J. fuscoater* to produce numerous and vigorous hybrid descendants of forms resembling *J. alpinus* we came to the conclusion that these types could no longer be retained as separate species. I am rather inclined, with Buchenau, to place *J. fuscoater* as a variety under *J. alpinus* (the older name) and thus call it *J. alpinus* var. *fuscoater* (Čelakowsky) Buchenau.

J. fuscoater is found chiefly in eastern Europe, reaching Finland and Scandinavia in the north. In Scandinavia the localities show a marked easterly concentration to Scania, Oeland and Gottland. It is a very noteworthy fact that this plant is rather uncommon in Denmark, though there seem to be numerous localities which edaphically are very suitable to it. In this connection it may be pointed out that not only *J. fuscoater* but also *J. alpinus* in southern Scandinavia show a more easterly concentration of the localities. Both seem to favour the chalky and upon the whole more nutritious plains of this region. As to what has been said above concerning the possibility of *J. alpinus* being produced by crossing *J. fuscoater* and *J. nodulosus*, we are led to the supposition that the concentration of *J. alpinus* to the south and southeast may be partly due to the fact that the hybrid might to a large extent have arisen in South Sweden during the culmination of the warm period, when we may presume *J. fuscoater* occurred abundantly within that very district.

Juncus nodulosus Wahlenberg. The most common

J. alpinus type in Scandinavia has often been called *J. nodulosus* Wahlenb. (Wahlenberg 1820, 1824—26, 1833, Fries 1828, 1835, Lindman 1918, 1926, Druce 1931).

In Wahlenbergs Flora Lapponica (1812) *J. sylvaticus* is described as being mainly characterized by its mucronulate perianth segments. Wahlenberg refers to Willdenow's *J. sylvaticus*, to Schrank's and Hoppe's *J. subnodulosus* and others. He characterizes the habitat »locis uliginosis et paludosis per partem sylvaticam totam omnium Lapponiarum frequenter» and adds »multum altius hyperboream versus adscendit quam sequens species». He also mentions *J. sylvaticus* in his Flora Upsaliensis (1820), but he further describes a new type belonging to the same group under the name *Juncus nodulosus*. The description of *J. sylvaticus* as well as its synonyms are to some extent altered, so that Wahlenberg's description apparently refers to some form that is more closely related to *J. lampocarpus*. A good description is given of the new *J. nodulosus*, stress being laid upon the obtuse inner perianth segments and the long mucronulate capsule. *J. subnodulosus* is given as a synonym. That Wahlenberg by the name *J. sylvaticus* in 1812 really meant to indicate a *J. alpinus*-form is verified in his Flora Suecia (1824—1826), where he refers to *J. sylvaticus* 1812 as a synonym of *J. nodulosus*. This seems to be the reason why the species *J. sylvaticus*, which is never found in Scandinavia, has appeared in Swedish floristic literature up to quite recent times.

At the same time as Wahlenberg gave the name to and described *J. nodulosus*, C. J. Hartman published some very good diagnoses of the same plant under the name of *J. rariflorus*. His species is characterized by erect branches in the panicle and umbels with 2—4 flowers and by obtuse perianth segments, which are shorter than the mucronate capsule. Besides the main form he describes a variety β *obtusatus*, with more obtuse capsules and larger flowers, which is said to occur in the Lule Lapp-district. In a supp-

lement to the synonyms (l. c. p. 451) he points out that his *J. rariflorus* is identical with WAHLENBERG's *J. nodulosus* — a remark of special interest in view of the question of the priority of these names.

There is indeed so much confusion surrounding the nomenclatural relations of this species that we must try to give the characteristics of the species at once in order to make the discussion of the synonyms clearer. *J. nodulosus* will here be characterized in close relation to the specimens given that name in WAHLENBERG's herbarium.

J. nodulosus differs from *J. alpinus* not only in the shape and size of the umbels but often also in the shape of the capsules. The umbels are generally fewflowered (2—5 up to 10 flowers), often less numerous than those of *J. alpinus*. The essential difference between these two types is however that solitary, or in some cases numerous flowers in the umbels of *J. nodulosus* are distinctly pedicellate. The capsules vary very much in shape but are generally oblong and up to about 4 mm. in length, gradually tapering and having usually a short mucro or none at all. But occasionally we find specimens with shorter and more obtuse capsules and with a more distinct mucro. Such types often have dark flowers and are no doubt the types that have suggested HARTMAN's description of β *obtusatus*. They are, however, not confined to the northern part of Scandinavia. — Many authors (BUCHENAU 1890 etc., PUGSLEY 1931) have attached special value to the colour of the flowers and the capsules in their taxonomical treatment of these types, but that point of view cannot be maintained, seeing that in actual fact the colour shows a very wide variation; moreover the shape of the capsule cannot possibly serve any useful taxonomical purpose in the classification of *J. nodulosus*.

Following the diagnosis given above we are now in a better position to discuss the synonomy of the species. In the second edition of the Novitiae Florae Suecicae ELIAS

FRIES discusses *J. nodulosus* Wahlenb. and gives *J. fuscoater* and *J. alpestris* as synonyms. Further on he describes a var. β *rariflorus* with more mucronate capsules and pale flowers and in the same passage he refers to *J. rariflorus* Hartman. FRIES thus seems to have considered WAHLENBERG's species to include as well *J. rariflorus* Hartman (*J. nodulosus* according to our interpretation) as the species *J. alpestris* Hartman (see fig. 11) and he has consequently separated from his *J. nodulosus* the variety β *rariflorus* identical with HARTMAN's similarly named species. This seems to be the first time that this type has been published as a variety. In the second edition of C. J. HARTMAN's Flora his very good exposition of the Swedish forms belonging to the *J. alpinus* series is amended throughout. WAHLENBERG's species is here incorporated with the species *J. ustulatus* Hoppe, which the author regards as identical with his concept of *J. nodulosus* Wahlenb. In the fourth edition of the same handbook *J. alpinus* Villars replaced *J. ustulatus* Hoppe, containing among others *J. nodulosus* Wahlenb. in its narrower sense. In the fifth edition a new nomenclature is given, which have become established in subsequent editions: under the species *J. alpinus* is described a var. β *rariflorus*, characterized by a thin panicle and 2—5-flowered umbels. This plant is more closely identical whith WAHLENBERG's species. But in the twelfth edition (KROK 1889) this variety disappears.

Thus *J. rariflorus* and its var. *obtusatus* in the first edition of HARTMANS Flora are, as specimens in the herbaria in Upsala and Stockholm clearly show, exactly identical with *J. nodulosus* Wahlenb. and partly identical with *J. ustulatus* in the second and third editions and with *J. alpinus* in the following. The variety *rariflorus* of *J. alpinus* in the later editions of this Flora is also identical with WAHLENBERG's species. C. HARTMAN in the latest editions of

his flora as also Neuman & Ahlfvengren (1901) and Lindman (1918, 1926), have overlooked the peculiar differences between *J. alpinus* Villars and *J. nodulosus* Wahlenberg.

From America have emanated some good descriptions of Wahlenberg's species. Robert Brown in 1823 gave a significant diagnosis of this plant, calling it *J. affinis*, Schultes described it under the name *J. Richardsonianus*, and A. Gray called it *J. pelocarpus*, wrongly referring to Meyer (1822). Finally, Engelmann has given a good diagnosis of this plant under the name *J. elongatus* Vasey. There are but very few authors who have noticed its main character, the pedicellate flowers. — Buchenau (1890) describes it as var. *insignis* E. Fries under *J. alpinus*, evidently without realizing that his description must be regarded as a diagnosis of *J. nodulosus* Wahlenb., which he wrongly assigns to his low alpine variety, var. *genuinus*. Later on Buchenau (1906) alters the name of the former variety to var. *affinis* under the influence of Ascherson & Graebner (1904). This plant, which is also identical with *J. nodulosus*, is characterized by erect panicle-branches, few-flowered umbels and generally pale flowers. But here too *J. nodulosus* and *J. rariflorus* Hartman are wrongly placed as synonyms under var. *mucroniflorus* (Clairville) Aschers. & Graebn. — In 1931 Pugsley published an interesting paper dealing with some English *Juncus alpinus*-forms. He seems to have a good idea of *J. nodulosus* Wahlenb., but has gone somewhat too far in the emphasis he lays on the colour and the size of the capsules, which, as is already mentioned, show extremely wide variations and are very often not to be distinguished from those of *J. alpinus* (in the narrower sense).

Concerning the taxonomical value of this type it may be said that a few isolated cultures have been made in order to get an idea of its constancy. The material was obtained, as already mentioned, from north-western Scania. Forms with distinct pedicellate flowers and oblong

Fig. 8. Map showing the distribution of *Juncus alpinus* var. *rariflorus* (E. Fries) C. J. Hartman in some north-west European countries.

capsules produced in their non-isolated descendants forms with rich-flowering umbels and almost subsessile flowers. The colour of the capsule varied very much in these cultures from light brown to black. It has already been pointed out how the Conservator HOLMBERG at Nosaby in Scania, discovered numerous forms intermediate between *J. nodulosus* and *J. fuscoater* in a locality, in which both these species were found and how he came to the conclusion that these forms were hybrids between the two species, showing a slightly but definitely diminished fertility. This renders it somewhat inconvenient to retain *J. nodulosus*

and *J. fuscoater* as separate species, an idea supported by quite a number of intermediate forms in the herbaria from regions where these species occur together. BUCHENAU was of the same opinion (BUCHENAU 1906) and made it a variety of *J. alpinus*. WAHLENBERG's species is described by ACHERSON & GRÆBNER, who likewise did not consider it to be a different species, and called it *J. alpinus* var. *affinis*, which name is also adopted by BUCHENAU; it cannot however be accepted under international rules, as there are much earlier ones available. — There is however no reason to use the name var. *obtusatus* given by C. J. HARTMAN in 1820, for it was his intention to describe only a part of WAHLENBERG's species, which differed in some unimportant characters (see above); this name will be accepted as applicable to the real form, which HARTMAN intended to characterize. In that case the next in priority seems to be the name var. *rariflorus* given by E. FRIES in 1828. By this name FRIES intended to characterize the central Swedish pale form with pedicelled flowers, and FRIES considers his new variety to be identical with *J. rariflorus* Hartman, which clearly shows that the new variety can be closely identified with what is above called *J. nodulosus* Wahlenb. This variety was placed under *J. alpinus* for the first time in the year 1849 by C. J. HARTMAN.

J. nodulosus has a very wide distribution within Scandinavia and Finland and reaches the coastal areas of the Arctic Ocean. It seems to be rare in Scotland, Iceland and Greenland, but occurs more abundantly in Canada and Northern United States. The *obtusatus*-form is most common in the arctic regions but in certain south Scandinavian areas there is a tendency to more obtuse and darker capsules, as e. g. in the plains of Västergötland and Oestergötland and on the isle of Oeland. This may be due to the present and ancient occurence of *J. fuscoater* in these regions. The pale and long-fruited form is most

O. MATTSSON photo.

Fig. 9. *Juncus alpinus* var. *Marshallii* (Pugsley) Lindquist. The three specimens to the left from Loch Ussie in Scotland, that to the right from Rimarvatn on Iceland.

common in Södermanland and Upland, but has also a very wide distribution in the southern part of Scandinavia.

Juncus Marshallii Pugsley. In the November number of The Journal of Botany 1931 H. W. PUGSLEY has drawn our attention to a hitherto neglected type belonging to this group, which he has named *J. Marshallii* and of which he gives a very good diagnosis. He characterizes it especially by its irregularly branched panicle with few small

umbles and flowers about 2 mm. long partly subsessile and partly distinct pedicellate. The capsule is small, scarcely reaching above the perianth. PUGSLEY mentions that his new species is fairly closely related to *J. nodulosus* Wahlenb. but that it is distinguished from the latter by its smaller and darker flowers and its shorter and more obtuse capsules. In connection therewith PUGSLEY discusses *J. nodulosus* and its taxonomical characters, to which indeed he gives too extreme a characterisation, apparently influenced by LINDMAN (1926). This has already been mentioned and it has been pointed out that the shape of the *J. nodulosus* capsule varies a good deal and this C. J. HARTMAN (1820) had already remarked. The length of the capsules varies from 2,6 mm. up to about 4 mm. with numerous short forms in the northern part of Scandinavia as well as in the south-eastern parts.

On the other hand, the very good material to be found in Scandinavian herbaria representative of PUGSLEY's new species shows that the type from northern Scotland, like the *J. alpinus* and the *J. nodulosus* of Scotland, has an extremely small capsule (between 2,1—2,3 mm.), while that of other (Scandinavian and Icelandic) specimens belonging to this type is in most cases much larger, as much as about 2,6 mm. — With reference to these characters all transitions between *J. Marshallii* and the pale and long-fruited form of *J. nodulosus* occur, the intermediate forms often being refferred to LINDMAN's *J. nodulosus* f. *dissolutus*. This would indicate that PUGSLEY's new species is very probably more closely related to *J. nodulosus* than it was at first supposed to be.

But a close relationship is also demonstrable between *J. Marshallii* and HARTMAN's *J. alpestris*, the small dark-flowered alpine and arctic form; the latter attains in some cases to the height of the fully developed *J. Marshallii* and then often shows the same type of panicle, though the flowers are still subsessile and even somewhat larger;

Fig. 10. Map showing the distribution of *Juncus alpinus* var. *Marshallii* (Pugsley) Lindquist in some north-west European countries.

in other cases we find small forms of *J. alpestris* with smaller flowers as in *J. Marshallii* and with one or two shortly but distinctly pedicelled flowers.

It does not seem at all advisable therefore to keep Pugsley's species separate from the others here mentioned and I think it not out of the question that it might equally correctly be classified directly under the var. *rariflorus* (*J. nodulosus*) as a subvariety than as a variety under *J. alpinus*.

After studying the available material of this type from the herbaria in Stockholm, Upsala, Lund, Oslo, Bergen,

Copenhagen and Cambridge, and after having also seen specimens in Dr. DRUCE's herbarium at Oxford, I wish to characterize it qualitatively in the same way as PUGSLEY, with particular reference to its partly sessile and partly long pedicellate flowers and to its relatively short and dark capsules and flowers; quantitatively, however, I intend to supplement his data regarding the length of flowers, anthers and capsules (se further page 355).

This interesting type has a rather distinct distribution, occurring frequently within the Atlantic districts of northwestern Europe, where it is found in northern Scandinavia, Iceland and, more rarely, in Scotland. It seems to be of a more atlantic character than the other types. — It may be remarked that I cannot accept the specimen no 27780 collected in Newfoundland by FERNALD and referred to by PUGSLEY as belonging to this type, nor the plant collected by BUCHANAN WHITE at Blair Atholl in Scotland. Both must be referred to *J. nodulosus.*

Juncus alpestris C. J. Hartman. C. J. HARTMAN gave in conjunction with his description of *J. rariflorus* a diagnosis of a related type, which he named *J. alpestris.* He distinguished this from *J. rariflorus* by its rich-flowered umbels and its simpler panicle with few umbels. Kvikkjokk is named as the locality for this type. In the following edition of HARTMAN's Flora this species was reduced to a variety and called *J. ustulatus* β *alpestris;* in the fourth edition it was omitted altogether, though it was mentioned that sometimes *J. alpinus* varies with rich-flowered dark brown umbels and is thus identical with *J. alpestris* Hartman 1820. The same note appears in the fifth edition of the same flora, in which a further variety, γ *uniceps,* is distinguished with the diagnosis: one or two inches high with 1—2 small umbels at the top. In the eleventh edition of HARTMAN's Flora (C. HARTMAN 1879) we find the species from 1820 noted as *J. alpinus* var. *alpestris,* but in the twelfth

O. Mattsson photo.

Fig. 11. *Juncus alpinus* var. *alpestris* (C. J. Hn) C. Hn. from Dovre, Norway (to the left) and the f. *uniceps* Krok & Lagerst. ap. Krok from Karesuando, Sweden (to the right).

it has entirely disappeared and only f. *uniceps* represents these types. — In modern Swedish literature *J. alpestris* C. J. Hartman is noted only by Lindman, who in 1918 names it *J. alpinus* sub-sp. *mucroniflorus* and in 1926 *J. nodulosus* var. *rariflorus* Hn., by which latter name however C. J. Hartman never intended to denote this plant.

In Buchenau's Monography on the genus *Juncus* (1890) a good description is given of Hartman's *J. alpestris* under the name of *J. alpinus* α *genuinus*, which name Buchenau later on, under the influence of Ascherson & Graebner, altered, to *J. alpinus* var. *mucroniflorus* (Clairv.) Aschers. & Graebn. He then gives as synonyms a very heterogeneous collection of *Juncus*-forms, e. g. *J. nodulosus* Wahlenb., *J. mucroniflorus* Clairville, *J. rariflorus* Hartman. *J. nodulosus* β *rariflorus* E. Fries etc. The description, which lays especial emphasis on the umbeloid panicle, the fewness of

the umbels and the often black flowers, makes it clear that the plant is identical with HARTMAN's species *J. alpestris*, but that it has very little common with either *J. rariflorus*, *J. nodulosus* or *J. nodulosus* var. *rariflorus*. As to CLARIVILLE's species, see page 316.

As we have just mentioned, HARTMAN's species is characterized chiefly by its reduced umbellate panicle; the branches of the panicle are often erect or subarcuate and terminate in a rich-flowered umbel, from the basis of which another branch sometimes develops. The flowers are generally dark brown to black and subsessile or with solitary short-pedicellate flowers

J. alpestris is not quite so characteristic as the other types studied here. Morphologically and taxonomically it is very closely related to *J. alpinus*, from which it is distinguished by the much reduced umbellate panicle and the sometimes short-pedicellate flowers. Moreover, it often has slightly wider bracteoles than the other species, often however it seems to change into *J. alpinus* without any real limit, and intermediate forms between these two types are not rare in Scandinavia. The *J. alpinus* found in England shows in some cases a close relationship to *J. alpestris*. On the other hand *J. alpestris* also closely resembles *J. Marshallii* Pugsley in the size of the flowers and especially in the type of the panicle. It may further be mentioned that this type is sometimes difficult to distinguish from small forms of *J. alpinus* var. *rariflorus* f. *grandiceps*.

In the second edition of WAHLENBERG's Flora Suecica (1833) LAESTADIUS describes a variety of *J. nodulosus*, which he calls β *biceps et uniceps:* he says that its flowers are placed together in one or two umbels and that it occurs near Karesuando in northern Sweden. Numerous original specimens in Herb. Holm. and Herb. Upsal. give an exact idea of this variety. LÆSTADIUS describes it once more (1839) and then he names it var. *biceps*. Some years

Fig. 12. Map showing the distribution of *Juncus alpinus* var. *alpestris* (C. J. Hn) C. Hn. in some north-west European countries. Open rings mark the occurrence of the forma *uniceps* Krok & Lagerst. ap. Krok.

later C. J. Hartman (1849) gave a description of the same plant, which he then called γ *uniceps*, under which name it appeared in later editions of this flora, the only alteration being in the twelfth edition, where it was changed into a form only. Neuman & Ahlfvengren (1901) called it f. *uni-biceps*. It has also been described and named outside the boundaries of the Scandinavian peninsula. U. v. Salis-Marschlins thus named it in a list of plants that he had found near Bastia in Corsica but the name he gives it, *J. lampocarpus* β *pygmaeus*, was not accompanied by any

description. Later on PARLATORE (1852) described it under the name *J. Requienii*, a name that was also used for this type by RICHTER (1890).

LÆSTADIUS' variety has always been regarded as a good variety and sometimes also as a species. A study of its forms and their relation to *J. alpestris* shows, however, that it is very closely connected with this type, into which it directly changes even on the same rhizome. This must be reason enough to regard this plant to be only a form of var. *alpestris*, and then call it var. *alpestris* f. *uniceps* Krok & Lagerstedt ap. Krok.

* * *

The types of *Juncus* mentioned in this paper show a quite distinct taxonomical bipartition based upon differences in the length of the anthers and the shape of the capsule. *Juncus anceps* and *J. atricapillus* differ from the other types in having longer anthers and somewhat smaller ovate and more acute capsule. That is the reason why, although it has been shown that *J. atricapillus* seems to produce fertile hybrids with *J. alpinus* and *J. nodulosus*, the two first-named types have been separated from the others as a distinct species. *J. anceps* and *J. atricapillus* are however rather difficult to separate from each other. The former is characterized by longer anthers, lighter perianths and often smaller and brighter capsules, characters that in districts where both types are present are mostly diffuse. BUCHENAU therefore have placed them in the same species making them both varieties of what he calls *J. anceps*. Similarly they are treated by ASCHERSON & GRÆBNER (1904) but on the same time they have been separated as different species in Scandinavia. — Where *J. atricapillus* occurs together with *J. alpinus*, *J. fuscoater* and *J. nodulosus* there will appear intermediate forms between these, as at Dagstorp in Scania, where it is really difficult to separate the

latter species from *J. atricapillus*. As a typically intermediate form occurring in this locality has been mentioned *J. fuscoater* f. *subatricapillus*. It seems to me to be very difficult to decide whether it will be taxonomically more convenient to separate *J. anceps* and *J. atricapillus* from the others as a distinct species. This has been done here, seeing that the two groups have a quite different distribution area and since they are more or less distinguished by very important taxonomical characters.

Juncus alpinus, as it has been identified in modern times is essentially characterized by its usually richly developed panicle, its rather large umbels with subsessile flowers and its oblong capsules, the colour of which varies from yellow to dark-brown. As has already been observed, this type is in some localities in Scania definitely found to be a hybrid between *J. nodulosus* and *J. fuscoater* showing numerous forms closely related to them. — It has also been mentioned that numerous transitions between *J. alpinus* and *J. alpestris* have been seen in herbaria, e. g. certain Scottish and north Swedish forms. *J. alpinus* is mainly differentiated from *J. alpestris* by the shape of its panicle and umbels.

What has just been said as to the close relation between *J. alpinus*, *J. fuscoater* and *J. nodulosus* being based on the fact that *J. alpinus* seems in some places to be a hybrid of the two others shows how difficult it must be to divide these three types into distinct species. The same may be said of the relation between the types just named and Pugsley's new species *J. Marshallii*. This species produces specially in central and northern Sweden forms showing transitions to *J. nodulosus* with longer and lighter capsules. Nor can we differentiate between Pugsley's variety and taller forms of *J. alpestris*, which often has a single well-pedicelled flower in its umbels.

This investigation has thus shown the need for separating the types discussed here into two distinct

species, one of them including *J. anceps* and *J. atricapillus* and called according to international rules, *J. anceps*, the other including *J. alpinus*, *J. fuscoater*, *J. nodulosus*, *J. alpestris* and *J. Marshallii*, and given the name of *J. alpinus*. To the other species have here been assigned the range of varieties, and not subspecies, because I do not wish to lay down any essential difference between these two terms. Races possessing essential taxonomical differences, which are often met with in nature and easily give rise to fertile hybrids, I intend to call varieties, whether they show any clear geographical distribution or not. Keeping the variety and the subspecies side by side will always cause nomenclatural confusion, partly owing to the fact that opinions as to the importance of a certain systematical character often differ and also because the nomenclature will undergo still further changes when the names of both varieties and subspecies have to be taken into account. Particularly in the case of the genus *Juncus* and the forms, dealt with here, the variety-terminology is in quite common use, while a subspecies-terminology is very seldom employed (Hartman 1879, Krok 1889, Lindman 1918).

This may possibly open up a new sphere of activity for anyone wishing to transfer the names of the types studied here from variety-terminology to subspecies-terminology.

By working out this paper I have had valuable help from the Curators of the above named herbaria to whom I am sending my best thanks; and hereby I am especially indebted to Professor G. Samuelsson in Stockholm, who has also supervised the latin diagnoses.

I also wish to thank Mrs Greta Du Rietz who has rendered me valuable assistance in drawing figures for this paper.

GRETA DU RIETZ del.

Fig. 13. Capsula cum perigonio *Junci ancipitis* et *J. alpini*. 1—3 *J. anceps* e Piccino di Palazzetti; 4 *J. anceps* var. *atricapillus* Buch. e Dagstorp Scaniæ; 5 idem e Faarup Klit Daniæ; 6 *J. alpinus* Vill. e Widdy Bank Britaniæ; 7 *J. alpinus* var. *fuscoater* (Čelak) Buch. e Martebo Sueciæ; 8 idem e Kävlinge Scaniæ; 9 *J. alpinus* var. *rariflorus* (E. Fr.) C. J. Hn e Sogndal, Fimreite Norwegiæ; 10 idem e Ringsjön Scaniæ; 11 idem ex Asker Norvegiæ; 12 *J. alpinus* var. *Marshallii* (Pugsley) Lindquist e Vallanes Islandiæ; 13 idem e Loch Ussie Scotiæ; 14 *J. alpinus* var. *alpestris* (C. J. Hn) C. Hn. e Dovre Norvegiæ; 15 idem e Kongsvoll Norvegiæ. C:a 5,5 ×.

Clavis et descriptiones formarum Junci ancipitis et J. alpini.

A. Antherae longae 0,6—1,3 mm, capsula matura 2,3—2,8 mm longa 0,9—1,1 mm lata oblongo-ovata breviter acuminata distincte mucronata

1. Caules et inflorescentia robusta, antherae 0,9—1,3 mm longae, capsula fulva 2,3—2,6 mm longa 0,9—1,1 mm lata *J. anceps*
   a. Inflorescentia contracta ramulis brevibus f. *coarctatus*
   b. Inflorescentia dissoluta ramulis longis f. *hercegovinus*
2. Caules et inflorescentia minus robusta, antherae 0,6—0,9 mm longae, capsula castanea vel fusco-atra 2,5—2,8 mm longa 1,0—1,1 mm lata var. *atricapillus*
   a. Inflorescentia contracta subcapitata ramulis brevibus f. *congestus*
   b. Inflorescentia dissoluta ramulis longis f. *sparsiflorus*

B. Antherae breves 0,3—0,7 mm, capsula matura vulgo majora (2,2—)2,6—3,9 mm longa, 1,2—1,6 mm lata obovata-oblongo-ovata vel oblonga
  1. Capsula plerumque obovata 2,3—2,8 mm longa 1,3—1,6 mm lata perigonio paullo longiora distincte mucronata
    a. Inflorescentia contracta ramulis brevibus *J. alpinus* var. *fuscoater* f. *subatricapillus*
    b. Inflorescentia non contracta var. *fuscoater*
  2. Capsula oblongo-ovata vel oblonga 2,2—2,6—3,9 mm longa 1,2—1,5 mm lata perigonium subaequans vel plerumque multo superans; mucro adest, sed minus prominens
    a. Inflorescentia decomposita plus minus ramifera
      i. Flores semper sessilis *J. alpinus*
      ii. Flores plus minus pedicellati
        x. Flores pedicellati saepe numerosi
          §. Flores fere omnes aequaliter pedicellati, pallescentia vel castanea; capsula perigonium plerumque multo superans var. *rariflorus* f. *dissolutus*
          §§. Flores 2—6 aequaliter pedicellati, reliqui sessiles vel subsessiles, fuscoatri; capsula perigonium vulgo subaequans var. *Marshallii*
          §§§. Flores fere omnes inaequaliter pedicellati, capitulis magnis var. *rariflorus* f. *grandiceps*
        xx. Flores 1—3 distincte pedicellati
          §. Capsula oblonga—oblongo-ovata pallida vel castanea var. *rariflorus*
          §§. Capsula obtusior oblongo-ovata atrofusca var. *rariflorus* f. *obtusatus*
    b. Inflorescentia simplex umbellata uni- vel bicapitata. Capitula magna.
      i. Capsula oblonga perigonium multo superans var. *rariflorus* f. *grandiceps*
      ii. Capsula oblongo-ovata obtusa fuscoatra perigonium paullo superans
        x. Inflorescentia capitulis 3—8; flores interdum pedicellati var. *alpestris*
        xx. Inflorescentia capitulis 1—2(—3); flores sessiles vel subsessiles var. *alpestris* f. *uniceps*
    c. Planta pygmaea, capitula pauciflora vulgo unica
      i. Antherae et capsula ut in A: 2 var. *atricapillus* f. *pumilus*

ii. Antherae 0,4—0,7 mm longi, capsula obovata mucronata var. *fuscoater* f. *acicularis*
iii. Antherae 0,4—0,7 mm longi, capsula oblongo-ovata mucronata var. *alpinus* f. *nanus*
iv. Antherae 0,4—0,7 mm longi, capsula oblonga plerumque non mucronata var. *rariflorus* f. *pygmaeus*

Juncus anceps Laharpe 1827
Syn.: *J. sylvaticus* var. β *anceps* Cosson & Durieu 1854—67.
J. anceps var. *genuinus* Buchenau 1883
J. atricapillus b *anceps* Richter 1890
J. littoralis (Salzman) Duval-Jouve 1872
J. fuscoater Pospichal 1897, non Schreber 1811.

Perennis. Rhizoma horizontale longum pallidum vel fuscum, diam. 3—9 mm. Caules floriferi robusti erecti plerumque compressi 20—60 cm alti 2—5-foliati. Folia basalia vaginiformia; folia caulina laminata 10—30 cm longa subarcuata vel arcuata vulgo distincte articulata vaginis saepe compressis rubescentibus vel pallidis vel fuscis. Inflorescentia decomposita vel supradecomposita ramis numerosis erectis vel arcuatis interdum abbreviatis. Bracteae florum ovatae, vel lanceolatae, aristato-mucronatae membranaceae capitulis brevioribus. Capitula plerumque numerosissimi 3—9-florifera pallida vel fulva floribus omnino sessilibus vel subsessilibus. Flores fulvi quam in *Junco alpino* minores, 2,2—2,6 mm longi; tepalis aequilongis externis duris distincte carinatis mucronatis, internis omnino obtusis destructione marginis membranacei plerumque specie acutis. Tepala capsulam aequantia vel $^3/_4$ capsulae superantia. Stamina sex usque 2 mm longa filamenta linearia alba, antherae quam in *Junco alpino* longiores 0,9—1,3 mm longae. Capsula trigono-elliptica ovata vel ovato-lanceolata sensim angustata acuta fulva saepe quam in var. *atricapillo* minor 2,3—2,6 mm longa, 0,9—1,1 mm lata mucrone c:a 0,2 mm longo. Semina pallida vel fusca anguste obovata obtusa 0,4—0,7 mm longa rectangulariter reticulata.

Planta atlantica et occidentali-mediterranea, habitat in Gallia, Italia, Algeria et Tunesia.

f. *coarctatus* Lindquist nov. f. Inflorescentia valde contracta.
f. *hercegovinus* Lindquist nov. f.
Syn.: *J. anceps* sub-sp. *Herzegovina* Sagorski 1901.
Planta minus robusta habitu ad var. *atricapillus* vergens. Inflorescentia dissoluta ramis minus numerosis quam in *Junco ancipipte*.

var. **atricapillus** Buchenau 1883

Syn.: *J. fuscoater* α *coarctatus* G. F. W. Meyer 1836 (nomen nudum)
J. articulatus sub-sp. *atricapillus* C. Hartman 1879
J. alpinus sub-sp. *atricapillus* Krok & Lagerstedt ap. Krok 1889
J. atricapillus Drejer 1838 (nomen nudum)
J. atratus Fries 1842, non Krocker
J. nigricans Reichenbach 1847, non Drejer
J. atricapillus Drejer ap. Lange 1851

Caules minus robusti, (10—)15—30(—40) cm lati, 2 usque 3-foliati Folia 10—30 cm longa stricta vel subarcuata plerumque distincte articulata. Inflorescentia 1—10(—15) cm longa decomposita vel supradecomposita interdum compacta ramis numerosis elongatis vel abbreviatis plus minus arcuatis. Capitula castanea vel fusco-atra 2—7-florifera, floribus breviter pedicellatis vel sessilibus. Flores castanei vel fuscoatri 2,5—2,8 mm longi quam in *Junco alpino* paullo minores sed majores quam in var. *ancipite*. Tepala capsulam saepe aequantia vel 3/4 capsulae superantia; antherae quam in *Junco alpino* longiores sed quam in var. *ancipite* minores, 0,6—0,9 mm longi. Capsula (fulva vel) fuscoatra vel atra quam in var. *ancipite* major 2,5 -2,8 mm longa 1,0—1,1 mm lata oblongo-ovata acuminata distincte mucronata mucrone c:a 0,2 mm longo. Semina ut in *Junco alpino*.

Planta atlantica; habitat in litoribus Europae occidentalis in Suecia (rarissima) in Jutlandia Daniae, in regionibus maritimis Germaniae, Bataviae et Belgiae, in Gallia et Africa occidentali-mediterranea.

f. *congestus* Lange 1856. Inflorescentia contracta saepe subcapitata.

f. *sparsiflorus* Lange 1856 pp. Inflorescentia ramulis paullo numerosis elongatis plus minus dissoluta.

f. *pumilus* Lindquist nov. f. Planta pygmaea usque 15 cm alta, capitula plerumque unica pauciflora. Capsula ut in var. *atricapillo*.

Juncus alpinus Villars 1787

Syn.: *J. alpino-articulatus* Chaix ap. Villars 1786 (nomen nudum)
J. geniculatus v. Paula Schrank 1789
J. mucroniflorus Clairville 1811
J. intermedius Poiret 1813
J. fuscoater E. Meyer 1822, Kunth 1841, non Schreber 1811
J. obtusiflorus Eichwald 1830

Perennis. Rhizoma breve horizontale pallidum vel fuscum non fibrosum internodiis distinctis diam 2—6 mm. Caules floriferi erecti teretes vel compressi 2—5-foliati (1—)10—40—60 cm alti.

Folia basalia vaginiformia; folia caulina laminata 4—10 cm longa plus minus compressa et articulata canaliculata vaginis subcompressis rubescentibus vel pallidis. Inflorescentia decomposita anthelata elongata usque (2—)5—20 cm longa ramis saepe numerosis erectis — patentibus. Bracteae florum late ovatae aristato-mucronatae membranaceae ferrugineae vel fuscae, capitulis brevioribus. Capitula plerumque numerosa 3—8-flores pallida vel castanea vel fuscoatra floribus sessilibus. Flores (2,1—)2,5—3,0 mm longi pallidi vel castanei vel fuscoatri; tepala aequilonga ovata vel oblongo-ovata obtusa marginibus membranaceis externa dorso carinata et distincte nervosa margine membranaceo apicem versus involuto, apice vel prope apicem distincte mucronata, interna omnino obtusa plana trinervosa. Tepala vulgo $^3/_4$ capsulae superantia. Stamina sex usque 1,5 mm longa; filamenta linearia alba; antherae flavae breves 0,4—0,7 mm longae. Capsula trigona oblongo-ovata vel ovata obtusa (pallida vel) castanea vel fuscoatra (2,2—)2,6—3,1 mm longa, 1,3—1,5 mm lata apicem versus sensim angustata mucrone brevi. Semina pallida vel castanea 0,4—0,7 mm longa oblongo-ovata rectangulariter reticulata.

Planta Europae, Asiae et Americae septentrionalis. In Europa media et Scandinavia austro-occidentali frequens; in Scandinavia septentrionali, in Islandia et in Britania rarior.

f. *nanus* Neuman & Ahlfvengren 1901. Planta pygmaea usque 10 cm alta capitula unica pauciflora.

var. **fuscoater** (Čelakovsky) Buchenau.

Syn.: *J. lampocarpus* δ *fusco-ater* Čelakovsky 1867
J. alpinus β *fuscoater* Buchenau 1890
J. fuscoater Schreber ap. Schweigger & Koerte 1811
J. ustulatus Hoppe 1819
J. microcarpus Nolte 1828

Caules 15—55 cm alti, 2—3-foliati. Folia 5—20 cm longa stricta vel subarcuata indistincte articulata. Inflorescentia 3—15 cm longa decomposita vel supradecomposita ramis floriferis patentibus. Capitula subrotunda plerumque atra floribus numerosis semper sessilibus. Flores fuscoatri vel atri, 2,4—2,8 mm longa, tepalis capsulam aequantibus vel $^3/_4$ capsulae superantibus. Antherae ut in *Junco alpino*, 0,4—0,7 mm longae. Capsula fuscoatra vel atra basi plerumque pallida vel castanea 2,3—2,8 mm longa, 1,3—1,6 mm lata obovata apice mucronata. Semina ut in *Junco alpino*.

Planta Europae orientalis, habitat in Scandinavia australi ut in Oelandia, Gotlandia, Scania et Dania orientalis.

f. *subatricapillus* Neuman & Ahlfvengren 1901. Inflorescentia contracta subcapitata, ramulis brevibus.

f. *acicularis* Lindquist nov. f. Planta pygmaea usque 10 cm alta, capitula plerumque unica, pauciflora. Capsula ut in var. *fuscoàtro.*

var. **rariflorus** (E. Fries) C. J. Hartman.

Syn.: *J. nodulosus* β *rariflorus* E. Fries 1828
J. alpinus β *rariflorus* C. J. Hartman 1849
J. articulatus var. *pelocarpus* Gray 1856, non E. Meyer 1822
J. alpinus var. *insignis* Buchenau 1890
J. alpinus var. *affinis* Ascherson & Graebner 1904
J. alpinus sub-sp. *nodulosus* Lindman 1918
J. sylvaticus Wahlenberg 1812, non Willdenow 1799
J. nodulosus Wahlenberg 1820
J. rariflorus C. J. Hartman 1820 (vide HARTMAN 1820, p. 451)
J. affinis Brown 1823
J. Richardsonianus Schultes 1829
J. ustulatus C. J. Hartman 1832, non Hoppe 1819
J. pelocarpus Gray 1848, non E. Meyer
J. elongatus Vasey in herb. apud Engelmann 1868

Caules (1—)10—30(—45) cm alti, 2-foliati. Folia 3—20 cm longa stricta vel subarcuata, plus minus articulata. Inflorescentia 3—18 cm longa decomposita ramis erectis vel patentibus. Capitula pallida vel castanea vel raro fuscoatra, minus numerosa, 2—5(—10)-florifera floribus perpaucis distincte pedicellatis, pedicellis usque 4 mm longis. Flores pallidi vel castanei 2,6—3,0 mm longi; capsula tepalis usque $^1/_3$—$^1/_2$ superans. Antherae ut in *Junco alpino,* 0,4—0,7 mm longae. Capsula pallida vel castanea vel interdum fuscoatra, oblonga vel oblongo-ovata sensim angustata indistincte mucronata, 2,6—3,9 mm longa, 1,3—1,5 mm lata. Semina ut in *Junco alpino.*

Planta borealis circumpolaris. Habitat in Scandiavia, Fennia, Islandia, Groenlandia et praecipue in America septentrionali.

f. *obtusatus* Lindquist nov. f.

Syn.: *J. rariflorus* β *obtusatus* C. J. Hartman 1820

Capsula obtusa, atra, 2,6—3,1 mm longa. Flores atrorubentes. Habitat in Scandinavia septentrionali, in Fennia et in America septentrionali, verisimiliter etiam alibi.

f. *dissolutus* Lindman 1918. Flores fere omnes longe et aequaliter pedicellati. Capsula pallescens vel castanea perigonium plerumque multo superans.

f. *grandiceps* Lindquist nov. f. Inflorescentia simplex vel

umbelloidea. Capitula magna, floribus fere omnibus inæqualiter pedicellatis. Capsula oblonga perigonium multo superans.

f. *pygmaeus* Lindquist nov. f. Planta pygmaea usque 10 cm alta capitula pauciflora vulgo unica. Capsula oblonga pallida vel castanea indistincte mucronata.

var. **Marshallii** (Pugsley) Lindquist nov. var.
Syn.: *J. Marshallii* Pugsley 1931
Caules graciles erecti 1—2-foliati. Inflorescentia decomposita usque 10 cm longa ramis floriferis rectis vel flexuosis capitulis 1—8-floris. Flores nunc subsessiles nunc usque 6 mm pedicellati. Flores minimi 2,0—2,6 mm longi castanei vel fuscoatri tepala subaequilonga. Antherae minimae 0,3—0,6 mm longae. Capsula 2,1—2,6 mm longa obovata obtusa mucronata vel atra tepala subaequans vel paullo superans.

Planta borealis, habitat in Scandinavia septentrionalis praecipue in Norwegia, in Islandia et rarissime in Scotia.

var. **alpestris** (C. J. Hartman) C. Hartman 1879.
Syn.: *J. ustulatus* β *alpestris* C. J. Hartman 1832
J. alpinus α *genuinus* Buchenau 1890
J. alpinus var. *mucroniflorus* (Clairville) Ascherson & Graebner 1904
J. nodulosus var. *rariflorus* Lindman 1926, non Hartman
J. alpinus sub-sp. *mucroniflorus* (Clairville) Lindman 1918
J. alpestris Hartman 1820

Caules (10—)15—25 cm alti, 1—2-foliati. Folia 1—5 cm longa erecta vel subarcuata, saepe distincte articulata. Inflorescentia 1—6 cm longa umbelloidea ramis erectis vel patulis plerumque paullo arcuatis; in f. *unicipite* capitula vulgo unicapitata vel bicapitata. Capitula fuscoatra vel atra, 4—10-florifera floribus sessilibus vel raro singularibus breviter sed distincte pedicellatis. Flores fuscoatra, 2,7—3,2 mm longi petalis capsulam parum sed distincte superantibus. Antherae 0,4—0,7 mm longae. Capsula fuscoatra vel atra, 2,9—3,2 mm longa, 1,3—1,5 mm lata late-ovata — oblongo-ovata breviter mucronata. Semina ut in *Junco alpino*.

Planta arctica et alpina, habitat in Scandinavia et Fennia septentrionali, in Islandia, Groenlandia et America septentrionali, necnon in Alpibus satis rare.

f. *uniceps* Krok & Lagerstedt ap. Krok.
Syn.: *J. alpinus* f. *uniceps* Krok & Lagerstedt ap. Krok 1889
J. alpinus f. *uni-biceps* Neuman & Ahlfvengren 1901
J. nodulosus β *biceps et uniceps* Laestadius ap. Wahlenb. 1833

J. nodulosus var. *biceps* Laestadius 1839
J. alpinus γ *uniceps* C. J. Hartman 1849
J. lampocarpus var. *pygmaeus* Buchenau 1890, non Salis-Marschlins 1833
J. alpinus var. *Requienii* Richter 1890
J. Requienii Parlatore 1852

Planta 2—15 cm alta 1-foliata uniceps vel biceps ramis erectis strictis. Distributio ut in var. *alpestri;* etiam in Corsica.

Herb. material examined (Lists of localities).

Material has been examined for this lists from the herbaria in Cambridge (C), Göteborg (G), Köbenhavn (K), Lund (L), Oslo (O), Oxford (Ox), Riksmuseum in Stockholm (R) Upsala Botanical Museum (U) and Upsala: The Institute of Plant Biology (V). I have also seen the material of *Juncus* in Dr G. C. Druce's private herbarium in Oxford (Dr). A! placed after a locality signifies that the author has seen the plant there, but that no collection has been made. From each locality only a single collection has been noted in order to get it more simple. Although some localities could not possible be fixed on the map they have likewise been published in these lists. I have to thank Dr Joh:s Gröntved, Copenhagen, and Mr Johannes Lid, Oslo, who have rendered critical assistance by the preparation of these lists.

Juncus anceps var. *atricapillus* Buchenau.

Sweden.

Skåne: Dagstorp, 1925, Otto R. Holmberg (L); Kävlinge, 1929, B. Lindquist (U); St. Harrie, 1929, B. Lindquist (U); Söderviddinge, Särslöv, 1928, B. Lindquist (L); **Halland:** In maritimis Hall., 1829, Herb. E. Fries (U);

Denmark.

Jylland: Gaardbo Sø, 1872, P. Nielsen (K); Raabjerg, 1875, J. Mørch (K); Hirshals, Kjul Aa, 1899, L. Kolderup Rosenvinge (K); Hjörring, Tornby Strand, 1841, Paulsen (K); Uggerby Aas udløb, 1901, Hartz (K); Lavning mellem Lunden og Vesterø, 1904, C. H. Ostenfeld (K); Laesø, Hede, 1899, J. Ferdinandsen (K); Laesø, Østerby, 1925, K. Wiinstedt (K); Laesø, S. om Byrum, 1902, J. Hartz (K); Blokhus, 1931, K. Wiinstedt (K); Vaenge, Jetsmark Praestegaard, 1895 (K); Bjerre Mose, 1917, C. H. Ostenfeld (K); Blissø, 1858, (K); Bolbjer, 1925, H. F. Poulsen (L); Hansted Klit, 1869, F. Schiøtz (K); Tuekaer, 1917,

C. H. Ostenfeld, (K); Agger Klit, 1846, G. Jensen (L); Mellem Agger og Lodbjerg, 1883, H. Mortensen (K); Flade Sø, 1883, J. Lange (L); Freskilde Sø, 1925, C. Christensen (K); Hvidbjerg Klit, 1890, F. Schiøtz (K); Nörhå Klit, 1867, M. N. Nielssen (U); Sjørring Sø, 1869, F. Schiøtz (K); Tvorup Klit, 1867, J. P. Jacobsen (U); Ørum Klit, 1890, F. Schiøtz (K); Ranum, 1904, J. Jeppesen (K); Husby Klit, 1913, K. Wiinstedt (K); Nissum Fjord, Ulfborg, 1899, E. Warming (K); S. Nissum, Ustrup Gaard, 1905, I. N. Nygaard (K); Nymindegab, C. Vaupell (K); Ringkøbing, Søndervig, 1895, M. Lorenzen (L); Blaavand, 1864, Fabricius-Møller (U); Blaavandshuk, 1854, C. Vaupell, (K); Fanø, Klingerbjerg, 1912, C. H. Ostenfeld (K); Fanø, Nordby, 1910, V. Norlind (R); Fanø, Praestbjerg, 1912, C. Raunkiaer (K); Fiil Sø, 1847, Piper (K); Langlig, 1880, Th. Holm & C. Jensen (R); Manø, 1880, Th. Holm & C. Jensen (R); Oxbøl, Nøkkersø, 1912, Poul Larsen (K); Skallingen, 1893, C. Ostenfeld-Hansen (K); Varde, N. Nebel, 1847, J. Lange (K); Romø, 1877, Th. Holm (L);

Juncus alpinus Villars.

Sweden.

Skåne: Borrby mosse, 1900, M. Petersson (R); Hov, Svenstorp-Perstorp, 1927, B. Lindquist (L); Hästveda torvmosse, 1895, O. J. Hasslow (R); Kävlinge, 1893, S. Murbeck (R); Nosaby kärr, 1924, Otto R. Holmberg (R); Skälderviken, 1917, Olof Tedin (R); Svalöv, Bare mosse, 1921, G. Samuelsson (R); **Öland:** Glömminge, 1924, H. Ekman, (L); Kastlösa, mell. Kyrkby och Penäsa, 1925, R. Sterner (R); Persnäs, Knisa, 1928, A. Arrhenius (R); Resmo, Möckelmossen, 1925, R. Sterner (R); Sandby, V. om Skarpa Alby, 1925, R. Sterner (R); Sandby alvar, 1925, Otto R. Holmberg (L); **Gottland:** Tingstäde träsk, 1917, T. Vestergren (R); **Småland:** Barkeryd, 1876, G. W. Montelin (L); Gränna, 1870, H. Karlsson (R); Jönköping, Munksjön, 1864, J. E. Zetterstedt (U); Jönköping, Rocksjön, 1926, N. Hylander (L); Moheda, 1874, Hyltén-Cavallius (U); Nässjö, 1909, A. Hülphers (R); Rogberga, Mjälaryd, 1889, K. Johansson (L); Visingsö, 1873, J. E. Zetterstedt (U); Vimmerby, Tuvelyckan, 1868, A. A. W. Lund (R); Växjö, 1887, C. Bergström (R); Öggestorp, 1874, C. Johansson (R); **Halland:** Ullared vid Hjärteredsjön, 1913, F. E. Ahlfvengren (R); **Göteborg:** Lagklarebäck, 1879, A. P. Winslow (R); Lärje, 1923, R. Ohlsén (R); **Dalsland:** Gunnarsnäs, Ekholmen, 1858, V. Wittrock (R); Laxarby, Svarttjärn, 1925, G. Johansson (R); Steneby, V. Högen, Iväg, 1925, Gunnar Johansson (R); Ör, Ed, 1901, A. Fryxell (L); **Västergötland:** Kinnekulle, 1887, C. Kylberg (U); Skölvened, 1869, J. Hulting (R); Skövde, Billingen, Åsbotorpsjön, 1913, A. Hülphers (R); Skärv, Hushagen, 1915, C. G. Alm (R); Skövde, Klasborg, 1915, A.

Hülphers (R); Stenum, Röde mosse, 1905, E. Lindegren (R); Torpa, Tosserydssjön, 1915, C. Sandberg (U); Ulricehamn, 1900, A. Nymansson (R); Undenäs, Björklången, 1913, J. A. O. Skårman (R); **Östergötland:** Källstad, Hånger, 1919, P. H. Johansson (L); Omberg, Dags mosse, 1853, O. G. Blomberg (L); Torpa, Falla, 1869, K. F. Dusén (U); Vinnerstad, 1873, E. Vetterhall (U); Vreta Kloster, Sjögestad, 1915, P. H. Johansson (U); Ydre, Sund, Gravby, 1869, K. F. Dusén (U); Ydre, Sund, Perstorp, 1869, K. F. Dusén (R); Ydre, Sund, Forsnäs, 1869, K. F. Dusén (U); **Värmland:** Arvika, 1886, E. Holmgren (U); Sunne, Björken, 1918, H. A. Fröding (R); **Närke:** Lillkyrka, Ekeberg, Kråkskär, 1925, T. Vestergren (R); **Västmanland:** Lindö vid Mälaren, 1882, A. E. Luhr (R); **Södermanland:** Härad, Igelsjön, 1901, G. Samuelsson (L); Hölö, 1891, O. Sternvall (L); **Stockholm:** Blockhusudden, 1841, J. E. Wikström (R); Djurgårdskanalen, 1852, Zetterstedt (U); Enskede, 1913, F. R. Aulin (R); Enskede, Brännkyrka, 1913, J. Lagerkranz (L); Nacka, Ellensvik, 1893, E. Nordström (R); **Uppland:** Blidö, 1911, H. Du Rietz (R); Edebo, Järinge, 1867, H. Mosén (R); Järlåsa, 1867, F. W. Åmark (U); Kallerö, 1872, K. F. Thedenius (R); Ljusterö, Gässviken, 1925, I. Fröman (R); Ljusterö, Vadholma, 1925, I. Fröman (R); Ramsta, Årby, 1905, H. Smith (U); Upsala, Lassby, 1868, E. Wahlén (R); Upsala, Norbyvägen, 1852, Zetterstedt (U); Upsala, Gottsunda, 1855, Th. M. Fries (U); Åland, 1876, F. Ahlberg (U); Älvkarleby, Västerboda, 1917, E. Almquist (U); **Dalarna:** St. Skedvi, Bispbergshyttan, 1910, G. Samuelsson (R); **Gästrikland:** Gävle, Stenbäck, 1837, Herb. Hartman (U); Hedesunda, Hadeholm, 1883, L. Hedell (U); Iggö, 1896, T. Arnell (U); Ockelbo, Brattfors, 1913, R. Berglund (L); Ovansjö, Storvik, 1892, K. Brandt (L); **Hälsingland:** Ljusdal, Omäng, 1911, G. Lidman (R); **Medelpad:** Njurunda, Skatan, 1903, E. Collinder (R); **Ångermanland:** Skog, Storsjön, 1856, C. P. Laestadius (R); **Norrbotten:** Piteå, Storsund, 1918, C. G. Alm (R);

Norway.

Akershus: Baerum, Snaröy, M. N. Blytt. (O); **Hedmark:** Trysil, Landsjöen, 1908, O. Nyhuus (O); Ytre Rendal, Hornset, 1899, C. Ostenfeld (O); **Opland:** Dovre, 1829, Egeberg (O); Lunner, Nyseter, 1905, R. E. Fridtz (O); Vestre Toten, mell. Blåvarp og Sivesind, 1911, R. E. Fridtz (O); **Buskerud:** Sigdal, Klampehö, 1930, B. Lynge (O); **Öst-Agder:** Bygland, Jordalsbö, 1901, R. E. Fridtz (O); **Vest-Agder:** Mandal, 1884, S. Murbeck (L); Lista, Hauge-Kviljo, 1894, A. Blytt (O): **Rogaland:** Ogna, 1904, R. E. Fridtz (O); **Bergen,** 1827, S. C. Sommerfelt (O); **Nordland:** Velfjord, Hegges omegn, 1880, J. M. Norman (O); Hugla, 1870, Blytt & Arnell (U); Nord-Rana, Dunderlandsdalen, 1894, R. E. Fridtz (O); Sörfolla, Dale, 1804 (U); Saltdal, Solvågtind, 1916,

R. E. Fridtz (O); **Troms:** Karlsöy, Jegervatnet, 1882, J. M. Norman (O); **Finnmark:** Kistrand, Börselven, 1915, O. Dahl (O).

Denmark.

Jylland: Gaardbo Sø, 1872, P. Nielsen (K); Raabjerg, 1875, J. Mørch (K); Skagen, 1897, O. Møller (K); Tversted, 1904, C. H. Ostenfeld (K); Aalborg, Nøvling Mose, 1863, C. Grönlund (K); Laesø, mellem Lunden og Vesterø, 1904, C. H. Ostenfeld (K); Ø. Brønderslev, 1859, M. T. Lange (K); **Sjælland:** Bistrup Mose, Roskilde, 1901, C. H. Ostenfeld (L); Gurre Sø 1900, O. Møller (R); Hvalsø, Magisterskoven, 1902, C. H. Ostenfeld (K); Ordrup Mose henimod Ermelunden, 1852, E. Rostrup (K); Rømø, Lakolk, 1923, K. Wiinstedt (K); Søndersø, Ballerup, 1869, P. Nielsen (K);

Iceland.

N. Icel.: Fliothede, 1876, C. Grönlund (K);

England.

Durham: Teesdale, Widdy Bank, 1909, G. C. Druce (Dr); Widdy Bank near Langdon Beck, 1930, G. C. Druce (Dr); Winch Bridge, 1930, G. C. Druce (Dr);

Scotland.

Kirkcudbright: Loch Greenoch, 1910, E. West (Ox); **Mid. Pert:** Meall na Saone, near Luib, 1889, E. S. Marshall (C); Meall Chuirn, near Luib, 1889, E. S. Marshall (C); **E. Perth:** Glen Shee, 1892, E. S. Marshall (C); **Easterness:** Glen Ennich, 1888, G. C. Druce (Dr); **Argyll:** Ben Laiogh, 1893, E. S. Marshall (Dr).

Juncus alpinus var. *fuscoater* (Čelakovsky) Buchenau.

Sweden.

Skåne: Arrie, 1892, Otto R. Holmberg (L); Bare mosse, 1921, N. Sylvén, G. Samuelsson (L); Borrby mosse 1900, M. Petersson (L); Bökeberg, Yddingen, 1921, Otto R. Holmberg (L); Dagstorp, 1908, V. Norlind (L); mellan Espinge och Hörby, 1900, Otto R. Holmberg (U); Hammar, 1886, A. Friberg (L); Hammarsjön, 1886, N. H. Nilsson (L); Hästveda, 1898, O. J. Hasslow (U); Kristianstad, 1924, Otto R. Holmberg (L); Kävlinge, 1893, S. Murbeck (L); Lund, Bjärredsstationen, 1911, Otto R. Holmberg (L); Maglehem, Olseröds

kärr, 1924, Th. Lange (L); Nosaby, 1924, Otto R. Holmberg (L); Ringsjön, 1886, N. H. Nilsson (G); Sandhammaren, 1898, L. M. Neuman (L); St. Harrie, Rinnebäck, 1925, H. Nilsson (L); Söderviddinge, Särslöv, 1928, B. Lindquist (L); Tomelilla, 1928, G. R. Cedergren (L); Ö. Espinge, 1900, Otto R. Holmberg (L); Österslöv, Tomarp, 1886, H. Nilsson (L); **Öland:** Föra, Uggletorp, 1919, H. Lindquist (L); Glömminge, Kvingerälla, 1924, N. Blomgren (L); Glömminge, Linsänkan, 1921, N. Blomgren (L); Gårdby, 1916, R. Sterner (R); Högby, Vedborn, 1918, R. Sterner (R); Högsrum, Mossberga, 1921, N. Blomgren (L); Högsrum, Odens flisor, 1921, N. Blomgren (L); Köping, Kalleguta, 1922, N. Blomgren (L); Mörbylånga, 1921, N. Blomgren (L); Mörbylånga, Nyhem, 1917, R. Sterner (R); N. Möckleby, Dörby, 1918, R. Sterner (R); Repplinge, Åketorp, 1922, N. Blomgren (R); Resmo alvar, 1923, N. Blomgren (L); Sandby, Nedre Ålebäck, 1923, N. Blomgren (L); Stenåsa alvar, 1923, N. Blomgren (L); S. Möckleby, Ö. Albrunna, 1925, R. Sterner (R); **Gottland:** Bro, 1893, T. Vestergren (R); på gränsen mellan Boge och Bäl, 1891, K. Johansson (U); Buttle, 1899, Otto R. Holmberg (L); Eskelhem, Sojvide, 1908, E. Th. Fries (R); Etelhem, Åkeslösa, 1879, K. J. Lönnroth (U); Fardhem, Myra, 1892, K. Johansson (U); Fårö, Demmor, 1893, K. Johansson (U); Fårö, Gåsemora, Ava, 1910, K. Johansson (U); Grötlingbo, 1929, E. Th. Fries. (L); Halls myrhage, 1917, F. Ingvarsson (L); Hemse, Oxarve, 1891, K. Johansson (R); Klinte, Mölner, 1894, K. Johansson (U); Lummelunds bruk, 1894, K. Johansson (R); Lokrume-Martebo, 1917, T. Vestergren (R); Lärbro, 1923, E. Th. Fries (L); När, 1895, K. Johansson (U); Roma myr, 1916, E. Th. Fries (R); Rute, Fardume, 1852, N. C. Kindberg (U); Skäggs, 1917, T. Vestergren (R); Tingstäde träsk, 1917, T. Vestergren (U); Vamlingbo, Bonsarve, 1894, K. Johansson (R); Vestkinde, Hästnäs, 1909, Th. Lange (U); Vestringe, 1880, G. Lagerheim (R); Visby, 1899, Otto R. Holmberg (R); Visby, Kungsladugården, 1909, E. Th. Fries (R); **Västergötland:** Skövde, Klasborg, 1915, A. Hülphers (R); Skövde, Stallviken, 1912, A. Hülphers (R); **Östergötland:** Vinnerstad, 1866, K. F. Dusén (U); **Södermanland:** Adelsö, 1912, J. W. Hammer (U).

Denmark.

Falster: Stubbekøbing, Liselund, 1917, H. F. Poulsen (R): Stubbekøbing, Tvede Mose, 1930, J. Olsen (K); **Sjælland:** Holmegaards Mose, 1915, A. Lange (K); Bidstrupgaards Mose, 1869, P. Nielsen (K); Børstingerød Mose, 1915, A. Lange (K); Farum, Sorte Mose, 1915, K. Wiinstedt (K); Furesøens Østkyst, Kaninhegn, 1863, H. Mortensen (K); Gjel Skov, 1887, J. Lange (K); Hjortespring, Fittmose, 1869, H. P. Ernstsen (K); Lyngby Mose, Louise Kilde, 1925, K. Wiinstedt (K); Ølstykke, Lyngen, 1907, A. Lange (K).

Juncus alpinus var. *rariflorus* (E. Fries) C. J. Hartman.

Sweden.

Skåne: Hov, Svenstorp-Perstorp, 1927, B. Lindquist, (V); Kristianstad, 1822, Laestadius (R); Kävlinge, 1893, S. Murbeck (L); Nosaby kärr, 1925, Otto R. Holmberg (L); Osby, 1928, E. Asplund (L); Ringsjön, Sjöholmen, 1925, Otto R. Holmberg (L); Stehag, 1920, Otto R. Holmberg (L); Ängelholm, 1926, H. Nilsson (L); **Öland:** Kastlösa, St. Dalby, 1885, S. Murbeck (L); **Småland:** Almesåkra, Fredriksdalssjön, 1865, J.-E. Zetterstedt (U); Barkeryd, 1876, G. W. Montelin (L); Grenna, 1886, P. Romare (L); Gårdsby, Kråknäs, Innaren, 1897, E. Köhler (U); Höreda, Smedstorp, 1886, P. Romare (L); Järsnäs, 1875, G. W. Montelin (R); Nässjö, ssv. Spexhultssjön, 1912, F. Hård af Segerstad (R); Säby, Åbonäs, 1875, C. Åberg (L); Tenhultsjön, Fagerslättsviken, 1889, K. Johansson (U); Vrigstad, 1865, W. O. G. Wetter (U); Växjö, 1887, A. Koraen (R); **Halland:** Falkenberg, 1919, Sten Svensson (L); Halmstad, 1904, F. E. Ahlfvengren (R.); Källsjö, Egnared, Björnsjön, 1913, F. E. Ahlfvengren (R); Skummeslöv, Allarp, 1885, B. Lidforss (L); Slättåkra, 1866, F. Elmquist (L); **Bohuslän:** Bäve, Sigelhult, 1881, J. E. Palmér (G); Färjenäs, 1908, A. H. Magnusson (G); Grinneröds-sjön, 1886, Krok (R); Hjärtum, Utby, Lången, 1929, H. Fries (G); Håby, Kärnsjön, 1929, J. E. Palmér (G); Lyse, Fiskebäck, 1923, J. Eriksson (G); Lysekil, Pinneviken, 1930, H. Fries (R); Marstrandsön, Tån, 1924, Lindström (G); Naverstad, Långevall, 1917, A. H. Magnusson (G); Sanne, Prästebol, 1925, R. Olsén (G); Skee, Blomsholm vid Färingen, 1925, S. Schiöler (G.); Stala, 1916, A. Palmgren (U); Tanum, Björnäs, 1888, O. Sternvall (L); Uddevalla, 1895, M. Bäärnhielm (R); **Dalsland:** Bäcke, Björtveten, 1917, C. A. Bergström (U); Dalskog, Dansbo, 1858, N. C. Kindberg (L); Dalskog, Teåker, 1915, S. & C. Bergström (U); Edsleskog, Rådanstjärn, 1926, F. Hård af Segerstad (R); Holm, in litore ad Venern, 1897, J. Henriksson (L); Åmål, Nötön nära Nöttkärr, 1899, P. A. Larsson (G); **Västergötland:** Amnehärad, Haddån, 1923, J. A. O. Skårman (R); Amnehärad, Otterbäcken, 1923, J. A. O. Skårman (L); Bjällum, Hornborgasjön, 1910, J. Lagerkranz (R); Bjärka, 1905, E. Lindegren (R); Bollebygd, Tockekulla, 1930, T. Borgvall (G); Borås, Bosjön, 1916, A. Hall (L); Borås, Viared, 1916, A. Hall (R); Erska, 1925, G. Kjellberg (R); Fristad, Öresjö, 1915, C. Sandberg (U); Fyrunga 1930, N. Albertsson (L); Härryda, Blomasjön, 1930, F. Lundberg (G); Jonsered, 1876, A. P. Winslow (R); Kinnekulle, Hönsäter, 1850, Zetterstedt (U); Kållandsö, Odensvik, 1893, Gunnar Lindmark (L); Lerum, Fösjön, 1928, F. Lundberg (G); Lidköping vid Vänerns strand, 1874, K. B. J. Forssell (L); Lyrestad, Sjötorp, 1864, C. Reuterman (U); Lärje, 1924, R. Olsén (R); Mariestad, 1917, A. Hülphers (U);

Mjörn, Nolhaga, 1893, A. Vinge (G); Partille, St. Kålsjön, 1927, T. Borgvall (G); Råda, Pixbo vid Rådasjön, 1922, H. Fries (G); Råda, Lilla Delsjön, 1922, H. Fries (R); Råda, Rådanäs, 1922, H. Fries (G); Skövde, Billingen, 1913, A. Hülphers (G); Styrsö, Vrångö, 1924, R. Olsén (R); S. Ving, Magden, 1926, G.-A. Westfeldt (L); Toarp, Ljushult, 1911, A. O. Olsson (R); Toarp, Gånghester, 1911, A. O. Olsson (R); Tuve, Björlandavägen 1925, H. Fries (L); Vassända, 1893, H. Svenonius (U); Vänersborg, 1902, C. V. Norén (R); V. Frölunda, Fiskebäck, 1923, R. Olsén (G); Åsbotorp, Billingen, 1913, A. Hülphers (L); **Östergötland:** Alvastra, 1925, Hj. Holm (L); Godegård, Bresjön, 1923, A. L. Segerström (R); Hylinge, Krogen, 1884, H. Strömfelt (R); Krokek, Marmorbruket, 1901, S. Lawski (L); Marmorbruket, 1871, H. Mosén (R); Risinge, Hulta, 1901, F. O. Westerberg (R); Risinge, Lotorp, 1924, N. Hylander (L); Rogslösa, Hovanäset, 1867, K. F. Dusén (L); Stjernorp, Roxen, 1889, H. Dahlstedt (R); S:t Johannes, Jonstorp, 1861, F. Elmquist (L); Tjällmo, Å, 1923, A. L. Segerström (R); Vadstena, 1845, K. J. Lönnroth (U); Vinnerstad, E. Stenhammar (L); V. Ny, Toknäs, 1923, A. L. Segerström (L); Ydre, Torpa, 1869, K. F. Dusén (U); **Värmland:** Arvika, 1886, E. Holmgren (L); Bro, Näset, 1925, G. Johansson (R); Ekenäs, 1839, (L); Grava, Forshaga, 1883, J. A. O. Skårman (L); Gustaf Adolf, Sundsjön, 1897, H. A. Fröding (G); Hornskullen, Herrhult, 1897, K. Johansson (U); Karlstad, Kanikenäset, 1898, A. Hülphers (L); Karlskoga, Bofors, 1878, C. Reuterman (L); Karlstad, 1900, A. Hülphers (U); N. Råda, Råda, 1893, H. Fröding (R); N. Råda, Rådasjön, 1897, H. A. Fröding (R); Segerstad, Ranviken, 1901, E. Th. Fries (L); Sillerud, Järnsjön, 1912, A. H. Magnusson (U); Sunne, Hägerud, Björken, 1918, H. A. Fröding (R); Sunne, Skäggeberg, 1907, H. A. Fröding (R); Tveta, Mossvik, 1901, H. A. Fröding (L); Tveta, Storön, Sjö, 1904, H. A. Fröding (R); Ölme, 1876, K. Falk (U); Östervallsskog, 1925, G. Johansson (R); **Nerike:** Askersund, 1861, C. J. Lindeberg (U); Kil, Hålahult, 1920, F. R. Aulin (R); Kvistbro, Multen, 1921, T. Hellsing (U); Rinkaby, Myrö, 1887, H. Johansen (U); vid Svennevadsån, 1869, C. Hartman (L); Viby, Kärr, 1862, G. A. Blomberg (L); Örebro, 1884, F. Elmqvist (R); **Västmanland:** Bengtstorp, 1878, C. Reuterman (U); Gyttorp, 1892, E. Pärson (U); Ljusnarsberg, Ljusnaren, Prästön, 1917, J. G. Laurell (U); Nora, 1863, A. G. Olsson (L); Näsby, 1876, F. Elmquist (L); Sala, Mellandammen, 1918, K. V. O. Dahlgren (R); **Södermanland:** Grödinge, Fårön, 1926, E. Asplund (R); Härad, Igelsjö, 1901, G. Samuelsson (R); Läby, Ekebysjön, 1860, O. Landgren (G); Nyköping, 1916, C. Blom (R); Nyköping, Bullersta, 1889, H. Hamberg (L); Salem, Rönninge, 1907, T. Krok (R); Strängnäs, Visholmen, 1907, E. Köhler (U); Svärta, Ångasjön, 1921, C. Blom (L); Taxinge-Näsby, 1901, G. Samuelsson (R); Torö, Herrhamra, 1929, E. Asplund (R); Tosterö, 1903,

C. Lindman (R); Tullgarn, 1895, O. Köhler (R); mellan Åda och Tullgarn, 1895, E. Köhler (U); Vagnhärad, Fruholmen, 1922, E. Asplund (L); Vrena, Långhalsen, 1905, T. Krok (R); Ytterjärna, Gliasjö, 1926, E. Asplund (R); Ytterjärna, Lannarstjärt, 1922, E. Asplund (L); Öja, St. Sundby, 1880, O. G. Blomberg (L); Ösmo, Järflotta, 1929, E. Asplund (R); **Stockholm:** Danderyd, Kevinge, 1910, F. R. Aulin (R); Enskede, 1913, J. Lagerkranz & V. Norlind (R); Galgbacken, 1892, S. Murbeck (L); Laduvikskärren 1852, Z-dt. (U); Lidingön, 1871, C. F. Nyman (U); Liljeholmen, 1864, E. W. Dahlgren (R); Kersön, Nockeby, 1852, C. J. Beurling (R); Värmdö, Lilla Björknäs, 1850, R. Fristedt (R); **Uppland:** Alsike, Rickebasta träsk, 1923, J. A. Nannfeldt (L); Blidö, Oxhalsö, 1911, G. E. Du Rietz (U); Frötuna, 1880, T. Hedlund (L); Hållnäs, Hållen, 1918, E. Almquist (L); Häverö, Singö, 1908, A. Fries (U); Ljusterö, Särsö, 1912, A. Hülphers (U); V. Lövsta, Heby, 1881, C. A. E. Lénström (L); Norrtelje, 1885, T. Hedlund (L); Ramsta, Årby, 1905, H. Smith (U); Upsala, Lassby backar, 1850, Th. M. Fries (U); Norby träsk, 1871, P. Borén (R); Vårdsätra, 1819, M. A. Lindblad (L); Vaksala, Vitulfsbergs träsk, 1872, P. Borén (L); Älvkarleby, 1917, E. Almquist (R); Österåker, Teljö, 1866, Krok (R); **Dalarna:** Boda, Lenåsen, 1900, K. Johansson (U); Garpenberg, Botbenning, 1928, B. Lindquist (L); Garpenberg, Finnhyttan, 1928, B. Lindquist (L); Husby, Ängelsfors, 1874, C. G. Andersson (R); Krylbo, 1879, C. Indebetou (R); Leksand, Grytnäs, 1928, B. Lindquist (L); Norrbärke, Skisshyttan, 1918, G. R. Cedergren (R); Norrbärke, Lernbo, 1920, G. R. Cedergren (U); Rättvik, Dådran, 1891, G. Hellsing (U); Rättvik, Vikarbyn, 1917, G. Samuelsson (U); Silvberg, Ulfshyttan, 1899, K. P. Hägerström (L); St. Skedvi, Kvista, 1902, G. Samuelsson (R); St. Tuna, Gimsbärke, 1923, K. Kolthoff (R); Svärdsjö, Vintjärn, 1914, Fr. R. Aulin (R); Söderbärke, Vibberbo, Hemsjön, 1920, G. R. Cedergren (U); Vika, Hällsjön, 1901, G. Samuelsson (U); Äppelbo, St. Vassgaln, 1919, E. Almquist (U); **Gästrikland:** Hedesunda, Hadeholm, 1883, L. Hedell (L); Hille, Iggön, 1928, S. Ahlner (R); Ockelbo, 1885, E. Collinder (L); **Hälsingland:** Alfta, Kyrkbyn, 1917, F. R. Aulin (R); Arbrå, 1885, E. Collinder (L); Forsa, Skarmyra, 1880, G. Fineman (G); Hassela, Björnholmen, 1915, T. Vestergren (U); Ljusdal, Borrby, 1919, Gottfrid Lidman (R); Loos, Carlberg, 1882, A. J. Douhan (R); Voxna älv, 1919, H. C. Kindberg (G); **Härjedalen:** Lillhärdal, 1884, S. J. Enander (R); **Jämtland:** Bispgården, Döda fället, 1910, G. Johansson (L); Brunflo, Lillviken, 1893 (R); Bräcke, Sveden, 1911, K. Johansson (R); Frösön, 1907, L. Wistrand (L); Ragunda, 1889, C. O. Strömholm (L); Torvalla, 1925, C. Skottsberg (G); Åre, Bodsjöedet, 1890, C. Schlyter (U); Åreskutan, 1843, P. J. Beurling & C. Lagerheim (R); **Medelpad:** Borgsjö, Dysjön, 1911, K. Stéenhoff (R); Bremön, 1883, J. P. Linde (R); Haverö, Galvattensån, 1910, K.

B. Nordström (G); Ljustorp, 1910, K. B. Nordström (R); Selånger, Töva, E. Carlsson (R); Stöde, Ede, 1905, E. Collinder (U); Stöde, N. Hällsjön, 1905, E. Collinder (R); Torp, Åse, 1869, G. A. Nordlund (G); Tynderö, 1863 (R); Timrå, Torstabacken, 1901, F. Ringius (L); **Ångermanland**: Härnösand, Härnön, 1892, C. Pettersson (R); Helgum, 1904, K. Johansson (U); Resele, Ökmyran 1856, R. F. Fristedt o. C. P. Laestadius (R); Sollefteå, Berg, 1910, G. Johansson (U); Själevad, Guldvik, 1922, E. Almquist (R); Säbrå, Grovhäll, 1867, H. W. Arnell (G); Tåsjö östra by, 1927, G. R. Cedergren (L); Viksjö, Västanå, 1923, N. Johnsson (L); **Västerbotten**: Bygdeå, 1901, H. Fahlander (U); Byske, Furuögrund, 1899, Lindström (G); Nysätra, Tennön, 1869, F. Risberg (R); Skellefteå, Folkträsket, 1905, G. Samuelsson (R); Umeå, 1881, N. L. Andersson (U); Vindeln, 1917, S. & A. Th. Vifell (R); Vännäs, Fällforsen, 1882, N. L. Andersson (R); **Norrbotten**: Kalix skärgård, 1908, F. E. A. Block (L); Kengis, 1855, L. L. Laestadius (R); Luleå, Bergnäset, Trolltjärn, 1904, H. Witte (U); Luleå, Höträsk, 1922, H. Svenonius (R); Luleå, Mannön, 1920, H. Svenonius (L); Pajala, 1889, Samzelius (R); Piteå, Storsund, 1918, C. G. Alm (U); Piteå, Trundavan-Långvik, 1916, E. Marklund (U); Salminanti, 1858, E. S. Fries (R); Torneå, 1830, Herb. Hartman (U); Torne älv nedanför Kengis, 1831, Laestadius (U); Över-Torneå, 1892, A. N. Lundström (U); **Åsele Lappmark**: Åsele, 1908, Th. Wolf (G); **Lycksele Lappmark**: Brännland, 1887, H. Samzelius (U); **Lule Lappmark**: Jokkmokk, Linabäckänget, 1929, Otto R. Holmberg (L); Jokkmokk, Smeds, 1929, Otto R. Holmberg (L); **Torne Lappmark**: Jukkasjärvi, Vittangi, 1928, Otto R. Holmberg (L); Jukkasjärvi, Vuoskonjarka, 1920, Th. C. E. Fries (R); Karesuando, 1829, E. Fries herb.

Norway.

Akershus: Dröbak, M. N. Blytt (O); Enebakk, Heier, 1927, J. Lid (O); Oslo, Seterstrand, M. N. Blytt (O); Aker, Sognsvatn, 1897, J. Svendsen (O); Aker, Nordberg, 1910, R. E. Fridtz (O); Aker, Bokstad, 1893, Blytt (O); Aker, Myrtjern i Nordmarken, 1868, A. Blytt (O); Aker, Rypetjern i Nordmarken, M. N. Blytt (O); Aker, Goslungen i Maridalen 1874 (O); Aker, Liggeren, M. N. Blytt (O); Aker, Kamphaug, M. N. Blytt (O); Aker, Movatn i Maridalen, M. N. Blytt (O); Asker, Tveter ved Seimsvatnet, 1926, J. Lid (O); Asker, Seimsvatn, 1893, S. O. F. Omang (O); Romerike, N. M. Blytt (O); Oslo, M. N. Blytt (O); Ski, Mitsjövatn, 1905, R. E. Fridtz, (O); **Östfold**: Hvaler, Storröd på Kirköy, M. N. Blytt (O); Hvaler, Flatskjer, M. N. Blytt (O); Id, Öhr, 1887, S. O. F. Omang (O); **Vestfold**: Jarlsberg, S. Möller (O); Larvik, 1876, J. M. Norman, (O); **Hedmark**: Åsnes, Gjesås-

sjöne, 1912, O. Nyhuus (O); Åsnes, Hasle, 1912, O. Nyhuus (O); Hamar, 1883, S. O. F. Omang (O); Elverum, Lyktingstjernet, 1905, O. Nyhuus (O); Alvdal, mellem Gjelten og Döleplassen, 1910, R. E. Fridtz (O); Tolga, Holöya, 1897, O. Nyhuus (O); **Opland:** Östre Toten, Ex. Herb. S. C. Sommerfelt (O); Vestre Toten, Blåvarp, 1912, R. E. Fridtz (O); Gran, Jarenvatnet, 1905, Fr. Lange (O); Brandbu, Brönsås, 1904, Ex. herb. Fr. Lange (O); Brandbu, Tingelstad, 1905, Ex. herb. Fr. Lange (O); Öyer, Tretten, 1916, R. Nordhagen (O); Sel, Laurgård, M. N. Blytt (O); Vågå, Tessevatn, 1912, R. E. Fridtz (O); Vågå mell. Byre og Storvik, 1912, R. E. Fridtz (O); Lom, 1849, N. Moe (R); Lom, mell. Björgen og Kleppdalsseter i Garmo, 1912, R. E. Fridtz (O); N. Land, Etna bro i Östsinna, 1906, R. E. Fridtz (O); Nord-Aurdal, Mellem Duverud og Ranheim, 1909, R. E. Fridtz (O); Vang, Kvamskleiven, Ex. herb. S. C. Sommerfelt (O); Vang, Bergsfjell 1909, R. E. Fridtz (O); Vang, Öye ved Vangsmjösen, 1909, R. E. Fridtz (O); **Buskerud:** Modum, Skotrudsseteren, 1880, J. Lange (L); Modum, Gravfossen—Modums bad, 1880, J. Lange (R); Lier, Svangstrand, 1921, O. Dahl (O); Drammen u. å. N. Lund (O); Övre Eiker, Brekke ved Eikern, 1905, R. E. Fridtz (O); Övre Sandsvaer, 1920, E. Moe (O); **Telemark:** Sannidal, Tyvatn, 1894, E. Jörgensen (O); Saude, 1868, L. Grönstad (O); Notodden, Strupa, 1928, J. Dyring (O); Lårdal, Trisetfjellene, 1887, J. M. Norman (O); **Öst-Agder:** Tvedestrand, S. Lund (O); Holt, Naevestadvatn, 1894, E. Jörgensen (O); Setesdalen, M. N. Blytt (O); Bygland, Jordalsvatn, 1901, R. E. Fridtz (O); Hylestad, Björgum, 1906, A. Röskeland (O); Valle, 1885, R. E. Fridtz (O); Bykle, Byklum, 1901, A. Röskeland (O); Bykle, Haslemo, 1901, A. Röskeland (O); **Vest-Agder:** Vennesla, Sauerkilen ved Grovene, 1901, R. E. Fridtz (O); Kristiansand, 1876, R. E. Fridtz (O); Lista, Vanse, 1882, R. E. Fridtz (O); Åseral, Mjåland, 1926, J. Lid (O); Flekkefjord, M. N. Blytt (O); **Rogaland:** Ogna, 1904, R. E. Fridtz (O); Böe, 1875, N. Bryhn (O); Klepp, Orre, 1884, S. Murbeck (L); Randaberg, 1875, N. Bryhn (O); **Hordaland:** Kvinnherad, Tråvik i Ölve, 1924, T. Lillefosse (O); Strandebarm, Holsetervatn, 1927, T. Lillefosse (O); Granvin, 1901, S. K. Selland (O); Voss, Grungane, 1925, J. Lid (O); **Sogn og Fjordane:** Laerdal, Laerdalsören, Fjordum, 1875, C. Baenitz (R); Aurland, Rondseter i Flåm, 1908, R. E. Fridtz, (O); Aurland, Öyadnaseter i Flåm, 1908, R. E. Fridtz, (O); Sogndal, Fimreite, 1867, A. Blytt (U); Askvoll, Stavenes, 1896, O. Dahl (O); Gloppen, Gjengedalsstölene ved Storevatn, 1897, O. Dahl (O); **Möre:** Edöy, Smöla, 1898, R. T. Nissen (O); **Sör Tröndelag:** Glåmos, ovenf. Kroken, 1925, J. Dyring (O); Orkdal, Svorkmo, 1927, Otto R. Holmberg (L); Trondheim, Fossestua, 1926, J. Dyring (O); **Nord-Tröndelag:** Frosta, Liavatnet, 1914, I. Jörstad (O); Overhalla, 1878, J. M. Norman (O); **Nordland**: Korgen, 1870, H. W. Arnell (U); Nesna, Handnesöy, 1870, Blytt & Arnell (U); Nesna, Hugla, 1870, Blytt & Arnell (U); Salt-

dal, Pothusbroen, 1925, A. Notö (O); Saltdal, Gamfossbro i Junkersdalen, 1916, R. E. Fridtz (O); Saltdal, Junkersdalen, 1916, R. E. Fridtz (O); Saltdal, Nestbyholmene, 1916, R. E. Fridtz, (O); Sörfolla, Dale, 1804 (U); Sörfolla, Nergarden, 1876, J. M. Norman (O); Sörfolla, Seljren, 1876, J. M. Norman, (O); Sörfolla, Rörstad, 1913, E. Marklund (U); Evenes, Strand, 1880, E. N. Ekstrand (U); Trondenes, Granholmen-Viksvatnet, 1882, J. M. Norman (O); **Troms**: Hindöya, Grasholmen-Viksvatnet, 1882, J. M. Norman (O); Salangen, Laberg, 1914, R. E. Fridtz (O); Salangen, Nedrevatn, 1914, R. E. Fridtz (O); Tromsöysund, Skulsfjordvatn, 1930, P. Benum (O); Lyngen, Skibotndalen, Övrevatnet, 1882, J. M. Norman (O); Lyngen, Stalloborre, 1902, R. E. Fridtz (O); **Finnmark**: Sör-Varanger, Salmijärvi, 1864, J. M. Norman (O).

Denmark.

Jylland: Gaardbo Sø, 1872, P. Nielsen (K); Raabjerg Mile Søer, 1904, C. H. Ostenfeld (K); Skagen, Drejer (L); **Sjælland**: Adserbo Plantage, 1930, K. Wiinstedt (K); Buresø, 1906, A. Lange (K); Gurre Sø, 1847 (K); Tisvilde, Kassemose, 1921, K. Wiinstedt (K).

Iceland.

S. Icel.: Höfn, 1894, H. Jónsson (K); **E. Icel.**: Dvergasteinn, 1894, H. Jónsson (K).

Scotland.

E. Perth: Blair Atholl, 1887, F. Buchanan White (Dr).

Juncus alpinus var. *Marshallii* (Pugsley) Lindquist.

Sweden.

Jämtland: Bräcke, Sveden, 1911, K. Johansson (U); Lockne, i diken vid anhaltsstationen, 1928, Th. Lange (L); Snasahögarna, 1868, Almquist & Axell (R); Ström, Håkafot; 1911, Mårten Sondén (R); Ås, Åskottbäcken, 1856, Krok (R); Östersund, 1910, E. Warodell (L); **Norrbotten**: Uddskär i Luleå yttre skärgård, 1922, Herman Svenonius (U); Över-Torneå, Niska, 1928, Otto R. Holmberg (L).

Norway.

Hedmark: Trysil, Gröndalen, Slåtmyrbekken, 1913, O. Nyhuus (O); Foldal, Dalholen, 1891, J. Dyring (O); Foldal, Gjelten, 1888,

A. Blytt (O); **Opland**: Gudbrandsdalen, W. Boeck (O); Sör-Fron, Baukhol, 1905, R. E. Fridtz (O); Vang, Storlifjell, N. Moe (O); Vang, Sandbroen, 1863, F. Hoch (O); Vang, Grindadn, 1906, R. E. Fridtz (O); Vang, Sönderål, 1909, R. E. Fridtz (O); Vang, Bergsfjell, 1909, R. E. Fridtz (O); **Hordaland**: Granvin, 1910, S. K. Selland (L); Voss, Flatlandsmoen, 1902, S. K. Selland (O); **Sogn og Fjordane**: Leikanger, Fresvik, 1864, A. Blytt (O); **Möre**: Stangvik, Todalen, C. J. Lindeberg (O); **Sör-Tröndelag**: Röros, E. Jörgensen (O); Glåmos, Glåmas vestside, 1926, J. Dyring (O); Glåmos, S. for Kroken, 1925, J. Dyring (O); Opdal, Drivstua, 1865, A. Falck (L); Meldal, Skomdal, M. N. Blytt (O); Meldal, Gomdal, M. N. Blytt (O); **Nordland**: Hemnes, Hemneset, 1870, H. W. Arnell (U); Nord-Rana, Dunderlandsdalen, Krokstrand, 1870, H. W. Arnell (O); Nord-Rana, Mo, Stenneset, 1870, A. Blytt (O); Saltdal, Rokland, 1881, J. M. Norman (O); Saltdal, Nestbyholmene, 1916, R. E. Fridtz (O); Fauske, Sulitjelmaomr. ved Furulund, 1907, Thorsten Sjövall, (U); Hammeröy, mell. Tranöy og Brendvik, 1878, J. M. Norman (O); Dverberg, Myre, 1873, J. M. Norman (O); Ankenes, Harjangen, Bjerkvik, 1888, R. E. Fridtz (O); Lödingen, 1881, J. M. Norman (O); Buksnes, Leknes, 1878, J. M. Norman (O); **Troms**: Målselv, Kirkesnes, J. M. Norman (O); Dyröy, Espejord, 1870, J. M. Norman (O); **Finnmar**: Alta, 1841, M. N. Blytt (O).

Iceland.

S. W. Icel.: Reykjavik, Langarnar, 1889, S. Stefánsson (K); Thormodstadir, 1889, S. Stefánsson (K); **S. Icel.**: Seljaland, 1893, S. Stefánsson (K); **S. E. Icel.**: Hornafjord, Rimarvatn, 1894, S. Stefánsson (K); **E. Icel.**: Vallanes, 1893, H. Jónsson (K).

Scotland.

E. Ross: Loch Ussie, 1892, E. S. Marshall (Dr, C).

Juncus alpinus var. *alpestris* (C. J. Hartman) C. Hartman.

Sweden.

Hälsingland: Färila, 1879, F. G. Strömfelt (R); **Ångermanland**: Tåsjö, Västertåsjö, 1927, G. R. Cedergren (R); **Härjedalen**: Stora Mittåkläppen, Mittån, 1891, S. J. Enander (R); Ljungdalen, 1836, (U); **Jämtland**: Snasahögarna, 1886, K. Jönsson (R); Handöl, 1906, F. Peters & T. Tengvall (L); Enafors, 1911, G. E. Du Rietz (U); Storlien, Gräsfjället, 1895, F. E. Ahlfvengren (R); Åreskutan, 1843, P. J. Beurling & C. Lagerheim (R); Åresjön, 1895, E. Köhler (U); Oviken, Eltnäset, 1872,

F. Behm (R); **Västerbotten**: Edefors, Kakheden, 1898, N. Sylvén (L); **Åsele lappmark**: Åsele 1908, Th. Wolf (L); **Lycksele lappmark**: Lycksele, Hemforsen, 1888, P. F. Lundquist (U); **Pite lappmark**: Peljekaise, Vuotmesatjåkko, 1925, Th. Arwidsson (R); Arjeploug, Vaukaselet, 1927, C. G. Alm. (R); **Lule lappmark**: Jokkmokk, Stora Sjöfallet, 1928, G. Björkman (R); Kvikkjokk, Kampajokk, 1909, N. K. Berlin (L); Kvikkjokk, L. L. Læstadius (R); Jokkmokk, 1904, Th. Wolf (R); **Torne lappmark**: Muonioniska, 1831, L. L. Læstadius (R); Karesuando, 1822, M. A. Lindblad (U); Jukkasjärvi, Vittangi, 1928, Otto R. Holmberg (L); Vilkisorta, 1909, T. Lagerberg (R); Jukkasjärvi, Ortojokk, 1926, Otto R. Holmberg (L); Jukkasjärvi, Kaupisenvuoma, 1922, C. G. Alm (U); Kengis, 1854, L. L. Læstadius (R); Pajala, 1854, L. L. Læstadius (L).

Norway.

Akershus: Asker, M. N. Blytt (O); Baerum, Snaröy, M. N. Blytt (O); Ullensaker, M. N. Blytt (O); **Hedmark**: Trysil, Nybergsund, 1914, O. Nyhuus (O); Alvdal, Eggen, 1910, R. E. Fridtz (O); Alvdal, mellem Alvdal og Ryhaugen, 1885, H. Tedin (L); Foldalen, Dipla vad, 1902, M. Sondén (R); Alvdal, öy i Folla, 1889, C. Störmer (O); Foldal, Dalholen, 1891, J. Dyring (O); **Opland**: Dovre, M. N. Blytt (O); Dovre, Fokstua, 1858, J. E. Zetterstedt (U); Gudbrandsdalen Liebman (L); Sel, Laurgård, 1854, M. N. Blytt (O); Lom, Böverdalen, J. M. Norman (O); Lom, Visdalen, Storhö, N. Moe (O); Lom, Lomsfjellene, Sulheim, 1858, J. E. Zetterstedt (U); Vestre Gausdal, Fjellet mellem Svatsum og Klåpeseteren, 1861, F. Hoch (O); Nordre Land, mellem Gjevle og Finnen, 1863, A. Blytt (O); Torpa, Hugulia, 1839, M. N. Blytt (O); Etnedal, Tonsåsen, M. N. Blytt (O); Nord-Aurdal, Skrautvål, Duverud, 1909, R. E. Fridtz (O); **Buskerud**: Kongsberg, Jondalen, P. E. Poulsson (O); **Öst-Agder**: Bygland, Austad, 1902, A. Röskeland (O); **Vest-Agder**: Mandal, 1884, Svante Murbeck (U); **Sör-Trøndelag**: Opdal, Kongsvoll, 1901, M. Sondén (R); Opdal, Finnshö, 1910, R. E. Fridtz (O); Opdal, Drivdalen, M. N. Blytt (O); Meldalen, Gomdal, M. N. Blytt (O); Röros, Bekkedalen, 1920, J. Dyring (O); Glåmos, Kroken, 1925, J. Dyring (O); **Nordland**: Vefsn, Majavatn, 1927, P. Benum (O); Nesne, Hugla, 1870, A. Blytt (O); Korgen, 1870, A. Blytt (O); Nord-Rana, Ravnå ved Langvatnet, 1910, O. Dahl (O); Svartisen, Mo, 1910, O. Dahl (O); Bodö, S. C. Sommerfelt (O); Bodö, 1851, C. Hartman (U); Saltdal, Solvågtind, 1899, J. Dyring (O); Fauske, Sulitjelma, Furulund, 1907, T. Sjövall (R); Sörfolla, Rösvik, 1856, Cederstråhle (R); Steigen, Engelöy, Storseter, 1912, A. Notö (O); Tysfjord, Storåen, 1878, J. M. Norman (O); Narvik by, Fagernes, 1881, J. M. Norman (O); Sulitjelmaomr., Sandnes, 1907, Otto R. Holmberg (L); Dverberg, Myre,

1873, J. M. Norman (O); Dverberg, Ramså, 1925, C. Skottsberg (G); **Troms**: Ibestad, Nipevatnet, 1865, J. M. Norman (O); Sörreisa, Klauven på Senja, 1852, J. M. Norman (O); Målselven, Kirkesnes, 1912, H. Resvoll-Holmsen (O); Tromsöysund, Tromsöya, 1862, J. M. Norman (O); Tromsöysund, Flöifjellet, 1915, E. Asplund (R); Karlsöy, Ringvassöy, Hessfjord, 1883, J. M. Norman (O); Karlsöy, Renöy, 1841, M. N. Blytt (O); Skjervöy, 1930, S. Grapengiesser (R); Lyngen, Signaldalen, 1882, J. M. Norman (O); Lyngen Nedrevatn i Skibotndal, 1902, R. E. Fridtz (O); Lyngen, Horsnesfjellet, 1882, J. M. Norman (O); Nordreisa, Fatavarre, 1899, R. E. Fridtz (O); Kvaenangen, Baddern, 1901, A. Notö (O); Kvaenangen, Alteidet, 1910, H. Resvoll-Holmsen (O); **Finnmark**: Alta, Altelven ved Elvestrand, 1884, R. E. Fridtz (O); Alta, Gærgia, 1883, J. M. Norman (O); Kvalsund, Neverfjord, 1920, O. Dahl (O); Kistrand, Börselven, 1863, J. M. Norman (O); Kistrand, Kolvik, 1915, O. Dahl (O); Gamvik, Gamvik til Nesseby, Alv. G. Nordvi in herb. J. M. Norman (O); Polmak ved Tana, 1851, C. Sommerfelt (U); Vardö, 1842, N. Lund (U); Sör-Varanger, Bökfjorden, N. Lund (O); Sör-Varanger, Jarfjorden, 1864, S. Henschen (O); Sör-Varanger, Kirkenes, mell. Kirkenesvatnene og Sandnes, 1903, R. E. Fridtz (O); Karasjok, Beskinjaga, J. M. Norman (O).

Iceland.

N. Icel.: Fliothede, 1876, C. Grönlund (K); Graenavatn, 1894, S. Stefánsson (K); Helgavatnsflói, 1889 — (K); Langaland, 1893, S. Stefánsson (K); Melrakkasletten, Grjótnes, 1896, C. Ostenfeld (K); Olofsdal, Steenstrup (K); Patricksfjord, 1908, K. Jessen (K); **S. W. Icel.**: Borg, 1905, H. Jónsson (K); Hvitárvellir, 1886, A. Feddersen (K); Ingialdshóll, 1894, H. Jónsson (K); Mose ved Reykjavik, 1884, E. Warming T. Holm (K); Stakkhamar, 1894, H. Jónsson (K); **S. Icel.**: Eyvindarhólar, 1901, H. Jónsson (K); Hnappavellir, 1901, H. Jónsson (K); Skaptafell, 1901, H. Jónsson (K); **E. Icel.**: Njarðvik, 1894, H. Jónsson (K); Ormarstaðir, 1887, B. Olofsson (K); Stöð i Stöðvarfjörður, 1894, H. Jónsson (K); Vallanes, 1893, H. Jónsson (K); Hof, 1903, O. Davíðsson (K); Sletta, Stenstrup (K).

Juncus alpinus var. *alpestris* (C. J. Hartman) C. Hartman f. *uniceps* Krok & Lagerstedt ap. Krok.

Sweden.

Öland: Resmo alvar, 1907, H. Smith (U); **Hälsingland**: Järvsö, Nybo, 1881, A. J. Douhan (R); Ytterhogdal, Vängsjö, 1896, M. Östman (R); **Härjedalen**: Storsjö, Nyvallen, 1905, M. Östman (R); **Medelpad**:

Sättna, J. Ångström (R); **Jämtland**: Bunnerviken, 1901, C. Jungstedt (R); Önsta, Norderö, 1906, F. Behm (L); **Västerbotten**: Edefors, Kakheden, 1898, N. Sylvèn (L); **Norrbotten**: Pajala, 1856, Laestadius (R); **Pite Lappmark**: Kvikkjokk, L. L. Laestadius (U); **Lule Lappmark**: Gellivare, 1890, H. Samzelius (R); **Torne Lappmark**: Jukkasjärvi, Laimolahti, 1921, C. G. Alm (R); nära Harrijärvi, 1920, H. Smith (U); Karesuando ad Kuttainen, 1830, Laestadius (U); Karesuando, 1831, Laestadius (R); Karesuando, Maunu, 1859, C. P. Laestadius (U).

Norway.

Hedmark: Alvdal, öy i Folla, 1889, C. Störmer (O); Foldal, Hvilehytten, 1883, R. E. Fridtz (O); Foldal, Gunnarseteren, 1885, N. C. Kindberg (U); **Opland**: Dovre, 1828, Boeck (O); Gudbrandsdalen M. N. Blytt (O); **Vest-Agder**: Mandal, 1884, S. Murbeck (R); **Sör-Tröndelag**: Kongsvoll, 1882, C. Reuterman (U); **Nordland**: Fauske, Furulund i Sulitjelma, 1907, Otto R. Holmberg (R); **Troms**: Kvaenangen, Kjaekan, 1882, J. M. Norman (O); **Finnmark**: Alta, ved Alteelv, 1838, J. Vahl (O); Alta, Goskamarkfjellet, 1852, J. M. Norman (O); Karasjok, Sjuosjavrre, 1864, J. M. Norman (O); Karasjok, Jesjokka, de överste fosser, J. M. Norman (O).

Denmark.

Falster: Bøtø Nor, 1896, J. Schmidt (K).

Iceland.

N. Icel.: Graenavatn, 1894, S. Stefánsson (K); Görfiðalur, 1893, S. Stefánsson (K); **S. W. Icel.**: Reykjavik, 1884, E. Warming & T. Holm (K); Tingvalla, 1908, K. Jessen (K); **S. Icel.**: Höfn, 1894, H. Jónsson (K).

Litterature.

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Aschersон, P. & Græbner, P., Synopsis der Mitteleuropäischen Flora. II: 2. Leipzig 1902—1904.

Brenner, M., Ueber *Juncus articulatus* L. in Fl. Suec. et Sp. plant. I. Botanisches Centralblatt. 1889. Cassel 1889.

Brown, R., Extracts from Dr Richardson's Botanical appendix to the »Narrative of a Yourney to the Shores of the Polar Sea», by Captain John Franklin. London 1823.

Buchenau, F., Eine verkannte deutsche Phanerogame. Berichte der deutschen botanischen Gesellschaft 1883.

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Čelakovsky, L., Prodromus der Flora von Böhmen. Prag 1867.

Clairville, J. de, Manuel d'Herborisation en Suisse et en Valais. Winterthour 1811.

Cosson, E. & Durieu de Maisonneuve, Exploration scientifique de l'Algérie: Flore d'Algérie, Phanérogamie, Groupe des Glumacées. Paris 1854—67.

Drejer, S., Fortegnelse paa endel nye eller sjeldne Planter, som i de sidste Aar ere fundne i Danmark. Naturhistorisk Tidskrift udg. af H. Krøjer. Bd 2. Kjøbenhavn 1838.

Druce, G. C., Juncus nodulosus Wahlenb. The botanical society and exchange club of the British Isles. Interim Report 1930. Oxford 1930.

—, Plant notes for 1930. The botanical society and exchange club of the British Isles. Report for 1930. Arbroath 1931.

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Riccia Beyrichiana funnen i Åsele lappmark.

Av Th. Arwidsson.

Under första hälften av oktober månad 1931 hade jag tillfälle att tillsammans med fil. mag. Gunnar Degelius företaga en resa i Åsele lappmark. Jag ägnade mig därvid nästan uteslutande åt insamling av mossor. Det material, jag kunde hopbringa, har överlämnats till dr Herman Persson, som för Riksmuseets arkegoniatsamlingar tillvaratager de exemplar, som anses böra införlivas med desamma.

Framförallt ett fynd är av så pass stort allmänt intresse, att jag redan nu vill omnämna detsamma. Det rör *Riccia Beyrichiana* Hampe (syn. *R. Lescuriana* Austin), vilken art anträffades den 11 oktober synnerligen rikligt under en tyvärr mycket hastig exkursion till det bekanta sydberget Henriksfjäll, beläget i Dikanäs kapellförsamling ungefär mitt emellan Dikasjön och Borkajaure (jfr Andersson och Birger s. 218 o. f.). Bestämningen har godhetsfullt utförts av apotekare C. Jensen, Köpenhamn.

Riccia Beyrichiana är tidigare i Sverige icke funnen norr om Mora, och det kan påpekas, att den nordligaste hittills kända lokalen i vårt land för någon *Riccia*-art överhuvudtaget (*R. sorocarpa*) ligger i Jämtland. Det är sålunda det första fyndet av en *Riccia* i Lappland. Säkerligen äro emellertid just arter tillhörande detta släkte mycket förbisedda icke minst därigenom, att de nå sin högsta utveckling så sent, att de flesta botanister aldrig bli i tillfälle att då göra exkursioner i mera svårtillgängliga landsdelar.

Det var i själva bergroten på obetydliga, m. l. m. glest vegetationsbevuxna avsatser, som jag fann arten. Tyvärr medgav tiden icke att undersöka annat än själva bergroten

och mera i förbigående en del av rasbranten. Det är emellertid i bergroten, som den rikaste vegetationen är att finna.

Henriksfjäll är enligt Andersson och Birger (s. 102) det sydberg i hela Lappland, som innehåller högsta antalet »fjällarter» nämligen 22 stycken, samtidigt som icke mindre än 13 typiska »sydskandinaviska» arter förekomma. Beträffande de allmänna naturförhållandena och fanerogamflorans sammansättning kan jag nöja mig med att hänvisa till den goda framställning, Andersson och Birger giva. Följande av mig iakttagna arter från bergroten och rasmarkens översta del, som saknas hos dessa författare, vill jag dock nämna: *Alchemilla alpina, Anthriscus silvestris, Melica nutans, Milium effusum, Polypodium vulgare.*

Dr Herman Persson har haft den stora vänligheten att bestämma samtliga 44 mossor utom *Riccia*, som jag insamlade i Henriksfjäll. Han har även lämnat mig upplysningar om arternas växtgeografiska ställning. Då en full förståelse av *Riccia Beyrichianas* förekomst fordrar kännedom om den övriga florans sammansättning, skall jag här meddela namnen på samtliga av mig funna mossor. Jag påpekar, att listan givetvis är mycket ofullständig — en ordentlig undersökning av Henriksfjälls sydbrant skulle säkert medföra ännu många intressant fynd. Nomenklaturen överensstämmer med den av Arnell och Brotherus använda.

Sydliga arter: *Frullania dilatata, Porella platyphylla, Radula complanata, Homalothecium sericeum, Leucodon sciuroides, Weissia viridula.* S:a 6 arter, utom *Riccia Beyrichiana.*

Anmärkningar: *Frullania dilatata* är ny för Lappland, den är för övrigt känd från Sk.—Mpd och Jmt. samt Öl. och Gtl. I Norge når arten upp till Alten. *Porella platyphylla* är likaledes ny för Lappland och har tidigare varit känd från Sk.—Ång. och Jmt. samt Öl. och Gtl. Denna art har i Norge sin nordgräns på 60° 30′ n. br. *Weisia viridula* är en kalkgynnad art, som i vårt land tidigare är känd från Sk.—Gstr., Dlr. och — nordligast —

Frösön i Jmt. Då frukterna mogna om våren och sålunda på här föreliggande material äro alldeles outvecklade, kan ej den möjligheten helt uteslutas, att i stället *Hymenostomum microstomum* (= *Weisia microstoma*) föreligger. Den senare arten är *minst lika sydlig* till sin utbredning. Den är i Sverige funnen från Sk.—Gstr. I Norge äro båda arterna funna nordligast i N. Trd. på 63° 30′ n. br. I Finland är *Hymenostomum*'s förekomst begränsad till Åland och närmast angränsande fastland under det att *Weisia* finnes i flera av Finlands sydliga landskap.

Sydliga-ubikvisita arter: *Cratoneurum glaucum* var. *filicinum*, som är kalkgynnad, *Hypnum cupressiforme*, *Orthothricum rupestre* c. fr. Summa: 3 arter.

Ubikvisita arter: *Jungermania quinquedentata*, *J. ventricosa* c. col., *Marchantia polymorpha*, *Plagiochila asplenoides*, *Ptilidium pulcherrimum*, *Bartramia ithyphylla*, *Brachythecium salebrosum*, *Bryum ventricosum*, *Campylium stellatum*, *Dicranum fuscescens* c. fr., *Grimmia apocarpa* c. fr., *Hedwigia albicans*, *Mnium punctatum* c. fr., *Pohlia cruda*, *Tortella tortuosa*, som är kalkfodrande, *Tortula ruralis*. Summa: 16 arter.

Ubikvisita-boreala arter: *Preissia quadrata*, som är kalkgynnad, *Brachythecium reflexum* c. fr., *B. rivulare*, *Drepanocladus uncinatus*, *Fissidens osmundoides*, *Leskeella nervosa*, som är kalkgynnad. Summa: 6 arter.

Boreala arter: *Harpanthus Flotowianus*, *Brachythecium Starkei* c. fr., *Cratoneurum glaucum* var. *falcatum*, som är kalkfordrande, *C. decipiens*, som är kalkgynnad, *Campylium hispidulum* var. *stragulum* c. fr., *Distichum montanum*, som är kalkfordrande, *Gymnostomum aeruginosum*, likaledes kalkfordrande, *Mnium medium*, *Myurella julacea*, som är kalkfordrande, *Neckera oligocarpa*, *Rhacomitrium ramulosum*, *Rhytidium rugosum*, som är kalkgynnad. Summa: 12 arter.

Anmärkning: *Neckera oligocarpa* är en ostlig art med utbredningscentrum i Sverige i södra Hls., Ång. och Mpd,

i Norge i Gudbrandsdalen och Dovre. Arten har i Sverige sin sydgräns i Gstr. (flera lokaler) och Upl. (1 lokal).

Alpin-boreal art. *Mnium orthorrhynchum*, som är kalkfordrande.

Anmärkning: Denna art har sin huvudutbredning i Hrj.—Lpl. men finnes även i Vb.—Mpd och sparsamt i Dls., Vg., Ög.

Av de här omtalade arterna växte följande i omedelbar närhet av *Riccia Beyrichiana: Preissia quadrata, Bryum ventricosum, Distichum montanum, Fissidens osmundoides, Leskeella nervosa* och *Weisia viridula.*

Det utpräglade särdraget i Henriksfjälls mossflora, så vitt vi hittills känna den, är förekomsten av 7 sydliga, värmefordrande arter. Anmärkningsvärt är, att ingen alpin art anträffats, visserligen föra Arnell och Jensen (s. 243) *Mnium orthorrhynchum* till en alpin artgrupp, men som av ovan meddelade utbredningsuppgifter framgår, är detta knappast riktigt. Arten har därför här upptagits såsom en representant för en övergångstyp mellan alpina och boreala arter. Även om många fynd återstå att göra i Henriksfjälls sydbrant beträffande mossorna, är det anmärkningsvärt, att icke en säkert alpin mossa är känd i det sydberg, som beträffande kärlväxterna innehåller största antalet »fjällväxter».

Tyvärr föreligger alltför otillräckligt primärmaterial, för att det skall vara möjligt att ge sig in på en närmare diskussion av *Riccia Beyrichianas* växtgeografiska ställning. Överhuvudtaget höra *Riccia*-arterna till de beträffande sina utbredningsförhållanden allra sämst kända mossorna. För att giva någon uppfattning om artens utbredning i Norden har jag efter Jensens sammanställning (1928), kompletterad med uppgifter hos Bomansson (1900), Jensen och Medelius (1929), Persson (1929) samt skriftliga uppgifter av apotekare C. Jensen och lektor E. Jörgensen, Fjösanger (Norge), gjort en karta över artens utbredning i de nordiska länderna. Den icke publicerade lokal, som apotekare Jensen

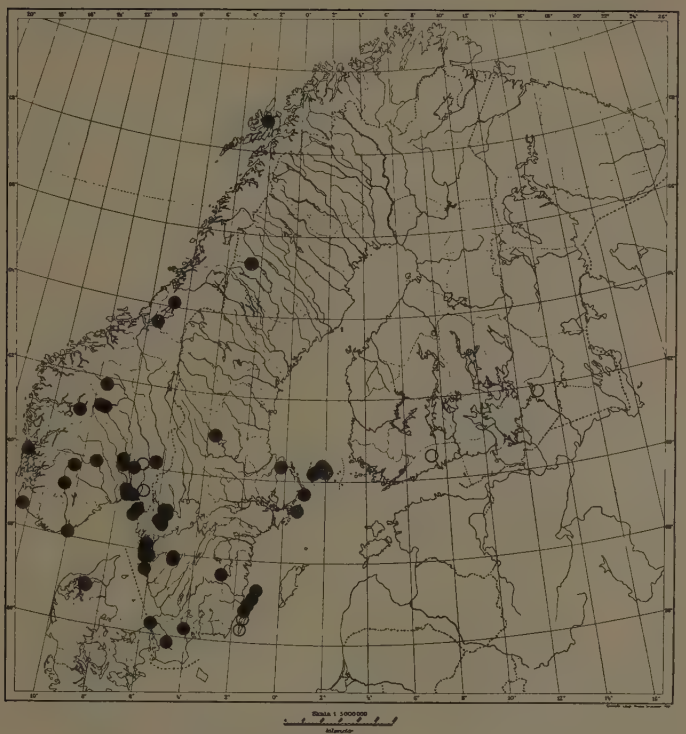

Fig. 1. *Riccia Beyrichiana* Hampe i Norden. ○ avser icke närmare markerade lokaler.

ställt till mitt förfogande är Bhl.: Sydkoster, där arten icke är ovanlig, men endast förekommer i omedelbar närhet av skalgrus. Lektor JÖRGENSEN har haft den utomordentliga välviljan att efter sitt tryckfärdiga arbete om Norges levermossor ställa till mitt förfogande en sammanfattning av artens utbredning i Norge. Kartbilden kommer tack vare detta material att få ett helt annat utseende, än om man endast haft tillgång till det av JENSEN (1928) publicerade norska materialet. Av särskilt intresse är framför-

allt följande lokaler. Troms.: Trondenes. Nord-Tröndelag: Frosta, Snåsa. Sogn og Fjordane: Lærdal. Hordaland: Stord, Varaldsöy, Os. Rogaland: Hetland.

Några anmärkningar till kartan torde vara på sin plats. En ring anger antingen, att arten anträffats inom ett större område (landskap, fylke eller många socknar) utan att specialuppgifter föreligga, eller förekomsten av tätt liggande lokaler, som icke på grund av kartunderlagets skala kunnat var för sig markeras. Det kan vidare påpekas att arten är allmän på södra Öland; i Dalsland finnas flera lokaler, än som av kartan framgår; i Östfold finnes 8—10 lokaler och i Akershus omkring 20.

Se vi på *R. Beyrichianas* totalutbredning, som omfattar västra och mellersta Europa (Irland, England, Tyskland, Portugal), Algeriet och Nord-Amerika ned till Florida, synes det antagligt, att en subatlantisk art föreligger. Hur pass västligt betonad den är i Europa är icke närmare utrett. Det kan nämnas, att *Riccia arvensis* Austin (hos Jensen 1928) under namn av *R. bifurca* Hoffm. ofta sammanblandats med *R. Beyrichiana*. *R. bifurca* är t. ex. uppgiven för varma källor på Island — enl. skriftligt meddelande av apotekare Jensen är det troligt, att *R. Beyrichiana* avses.

I Norden är *R. Beyrichiana* en utpräglat sydlig art (värmefordrande). Med tanke på dess rika förekomst på Öland, Runmarölokalen, Jensens iakttagelser på Sydkoster etc. är det väl så gott som säkert, att arten är kalkgynnad. Beträffande den rika förekomsten på Åland vill jag påpeka, att Ålands mossflora är välkänd, åtm. äro framförallt av Bomansson omfattande insamlingar företagna där. Även om Åland är överrepresenterat i antalet prickar på här återgivna karta, måste man komma ihåg, att det ingalunda är ovanligt, att m. l. m. subatlantiska arter förekomma på Åland och närgränsande provinser på det finska fastlandet.

Det enda vi nu sammanfattande kunna säga om *R. Beyrichiana* från växtgeografisk synpunkt är, att den synes vara *en subatlantisk, kalkgynnad art.*

I anslutning till här framlagt material må följande allmänna synpunkter framhållas. När Andersson och Birger för nu tjugo år sedan lade grunden till studiet av sydbergens flora, kunde de endast taga hänsyn till de högre växterna. Om moss- och lavfloran i sydbergen visste man för litet, för att de skulle kunna medtagas i resonnemangen. De exempel, som dessa förff. anföra ur litteraturen (s. 115—117) peka dock i en bestämd riktning. Tyvärr har det goda uppslag, som gives i orden »en ingående undersökning av moss- och lavfloran inom Norrlands sydberg . . . synnerligen givande», icke lett till att undersökningar av ifrågavarande slag kommit till stånd. Det torde emellertid vara otvivelaktigt, att skola frågorna rörande betingelserna för de norrländska sydbergflorornas uppkomst och rekrytering kunna lösas, är det nödvändigt att beakta icke endast kärlväxtfloran utan även de lägre växterna. Åtminstone beträffande lav- och mossfloran äga vi numera en så pass god kunskap om de systematiska enheter, vi ha att röra oss med, att en dylik undersökning är möjlig att genomföra. När en gång sydbergens moss- och lavflora blir planmässigt undersökt, skall det säkerligen visa sig, att lika distinkta grupper som beträffande kärlväxtfloran kunna urskiljas, och att dessa växter kunna lämna nog så viktiga bidrag till lösandet av de problem, som alltjämt äro förbundna med sydbergens arter.

Givetvis är det icke endast för lösandet av de problem, som äro bundna till sydbergens flora, som mossorna och lavarna böra komma med i diskussionerna. När helst det gäller ett allmänt växtgeografiskt problem, böra kryptogamerna, i den utsträckning det är möjligt, beaktas. Det kan i detta sammanhang påpekas, att först i år mossorna kommit till användning för att belysa det bicentriska problemet (Persson 1932).

Till sist kan jag icke underlåta att påpeka beträffande lavfloran i det sydberg, som nu närmast intresserar oss, att i Henriksfjäll äro följande lavar anträffade, som synas vara bundna till sydberg (jfr Degelius 1932 b): *Dermatocar-*

pon miniatum och *Parmelia subaurifera*. Det kan vidare påpekas, att en annan lav, som ej är sydlig, *Physcia muscigera*, har sin enda lokal i Åsele lappmark i Henriksfjälls sydbrant. Emellertid är det tydligt, att vi ännu icke beträffande lavfloran kunna tala om typiska sydbergsarter (jfr Degelius 1932 a s. 16, 1932 b s. 21). Det är emellertid ingalunda osannolikt, att detta beror på, att sydbergen ur lichenologisk synpunkt äro rätt okända. Att emellertid sydbergen även beträffande lavarna äro rika, har t. ex. redan Hellbom framhållit, liksom Almquist påpepat den blandning av nordliga och sydliga arter, som där finnes.

Stockholm, Riksmuseets Botan. avdeln., 19 juni 1932.

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Smärre uppsatser och meddelanden.

En anmärkningsvärd skånsk inlandslokal för Plantago maritima L.

I de svenska flororna synes *Plantago maritima* i regel uppfattas som en ren havsstrandväxt. I sista upplagan av Hartmans flora (1879) angives sålunda dess förekomst: »hafsstr. a.». Neumans flora (1901) förlägger likaledes artens utbredning till kusten men gör dock härvid det tillägget: »sällan inne i landet». De i litteraturen omförmälda inlandslokalerna äro emellertid ytterligt fåtaliga. Den äldsta kända inlandslokalen är givetvis Ölands alvar, där *Plantago maritima* observerades redan av Linné under hans öländska resa 1741: »Plantago foliis semicylindraceis integerrimis växte öfwer hela fältet inemot Tiusta-By; Bladen voro ofwan på fläckuge som en orm, och der bladen komma upp ur roten satt en lång hvit ull» (C. Linnæus, Ölandska och Gothländska Resa. Stockholm & Upsala 1745, p. 109). Såsom Hernfrid Witte, De svenska alfvarväxterna, Ark. f. bot. Bd. 5, N:o 8, p. 73, framhåller, förekommer *Plantago maritima* på Öland på såväl Borgholms alvar som Södra alvaret mångenstädes rätt allm. Även från Gotlands alvarområden är arten känd; K. Johansson, Hufvuddragen af Gotlands växttopografi och växtgeografi, K. Sv. Vet.-Akad. Handl. Bd. 29, N:o 1, p. 161, angiver densamma från »hällmark i Öja». Även andra gotländska inlandslokaler anföras av Johansson; förutom »på stränderna» angiver J. sålunda *Plantago maritima* såsom växande »h. o. d. inpå öns s. del på åkerrenar, vägkanter och ängar» (K. Johansson l. c., p. 160). En inlandslokal av särskilt intresse möter i andra uppl. av F. W. C. Areschougs Skånes flora (1881, p. 133). *Plantago maritima* angives här förekomma »allmänt på hafsstränder och betesmarker i närheten af hafvet, stundom äfven på betesmarker längre inne i landet, t. ex. på Kungsmarken öster om Lund (Kand. Hj. Nilsson)».

Till de sålunda kända inlandslokalerna för *Plantago maritima* kan här fogas ännu en skånsk sådan, nämligen Svalöf, Svenstorp, på c. 2 mils avstånd från närmaste havsstrand. Hösten 1920 påträffade undertecknad här å en mindre moränkulle *Plantago*

maritima strödd över ett c. 20 m långt och 4—5 m brett område, beväxt med ängsartad vegetation av följande artsammansättning:

Örter rikliga:

Achillea Millefolium
A. Ptarmica
Athyrium Filix femina
Campanula rotundifolia
Centaurea Jacea
Cerastium cæspitosum
Chamænerion angustifolium
Chrysanthemum Leucanthemum
Cirsium acaule
C. arvense
Filipendula hexapetala
Fragaria vesca
Galium boreale
G. verum
Geum rivale
Hieracium Pilosella
Hypericum maculatum
H. perforatum
Knautia arvensis
Lathyrus montanus
Leontodon autumnalis
Linum catharticum
Lotus corniculatus
Pimpinella Saxifraga
Plantago lanceolata
P. maritima
Platanthera bifolia
Polygala vulgaris
Potentilla erecta
Prunella vulgaris
Ranunculus acris
Rhinanthus minor
Rumex Acetosa
Scorzonera humilis
Succisa pratensis
Trifolium medium
T. pratense
Tussilago Farfara
Veronica Chamædrys
Vicia Cracca.

Gräs rikliga—ymniga:

Agrostis canina
A. tenuis
Avena pratensis
Briza media
Carex flacca
C. hirta
Dactylis glomerata
Deschampsia cæspitosa
Festuca ovina
F. rubra
Holcus lanatus
Nardus stricta
Poa pratensis
Sieglingia decumbens.

Buskar och ris tunnsådda:

Calluna vulgaris
Juniperus communis
Prunus spinosa
Rubus idæus
Thymus Serpyllum.

Plantago maritima förekommer inom det nämnda området strödd, fläckvis nästan riklig. Även utanför det å moränkullens krön befintliga egentliga *Plantago maritima*-området uppträder arten i enstaka exemplar ända till ett 60-tal m bort. Marken är

här fläckvis mera fuktig och vegetationen yppigare och kan *P. maritima* synbarligen här ej med större framgång konkurrera med den övriga vegetationens allt kraftigare vegeterande arter.

Vid ett besök å Svenstorps-lokalen den 6 nov. 1929 åtföljdes jag av statsgeologen doktor GUNNAR EKSTRÖM, som avvägde fyndplatsen och insamlade jordprov för närmare undersökning. Efter verkställd kemisk analys av det tagna jordprovet har doktor EKSTRÖM välvilligt tillställt mig följande utlåtande:

»Lokalen med *Plantago maritima* 30 m OSO om Svenstorps gård i N. Svalöfs s:n är en ej odlad, mindre moränkulle invid en åker samt ligger c:a 88 m ö. h. Högsta marina gränsen ligger i denna del av Skåne på omkring 16 m ö. h., varför sålunda havet i kvartär tid ej alls nått upp till området ifråga. Jordarten är en starkt stenig och grusig samt svagt lerig nordostmorän (silurmorän). Vid besöket på platsen insamlades ett jordprov av det övre markskiktet till 15 cm djup. Markreaktionen var sur, $p_H =$ 5,1. En kvalitativ analys av jordextraktet visade, att varje spår av klorider saknas.»

Plantago maritima uppträder vid Svenstorp i en tämligen smalbladig, lågväxt form. De största exemplaren bilda ofta ganska kraftiga tuvor, vittnande om relativt hög ålder. Föryngringen synes vara synnerligen god; talrika grodd-ungplantor av olika storlek giva oförtydbart vid handen, att växten på lokalen finner den bästa trevnad.

NILS SYLVÉN.

Botaniska strövtåg i sydöstra Skåne 1928—1931.

Under de senaste åren har Ystads botaniska klubb, samlad eller i grupper, vid ett tillfälle t. o. m. under ledning av Professor H. NILSSON-EHLE och Doktor N. SYLVÉN, gjort vissa botaniska undersökningar i sydöstra Skåne. Med det allmänna floristiska intresset har därvid förenats en undersökning av huruvida i ARESCHOUGS flora av 1881 angivna växtlokaler fortfarande äro befintliga samt frekvensen å densamma. De uppgifter, som nedan lämnas, göra icke anspråk på fullständighet och omfatta

endast de sällsyntare eller mindre allmänna arter, som tilldragit sig särskild uppmärksamhet. Frekvensen å lokalerna angives med beteckningarna: sparsam (spars.), måttlig (måttl.) och talrik (talr.). Av Areschoug angiven lokal betecknas med A.

Ystad i februari 1932.

Georg Björnström.

Ystad.

a) Hamnområdet [genom utvidgning av hamnanläggningarna (järnvägsspår, lastkranar m. m.) har detta område i hög grad förminskats och flera arter, som funnos 1928—1930, äro nu utrotade]:

Brassica juncea, måttl.
B. nigra, 5 ex. 1929, nu sannolikt utrotad.
Bromus tectorum, spars.
Camelina microcarpa, 1 ex. 1931.
C. linicola, måttl.
Carduus crispus × *nutans*, 2 ex. 1929.
Centaurea nigra, 1 ex. 1930.
Cynosurus echinatus, spars. 1928.
Diplotaxis muralis, spars.
D. tenuifolia, spars. A.
Gypsophila paniculata, 2 ex. 1929.
Hordeum murinum, spars. A.
Lactuca scariola, måttl.; nu sannolikt utrotad.
Lepidium densiflorum, spars.
Melandrium viscosum, spars.
Melilotus officinalis, talr.
M. albus, måttl. A.
M. arvensis, spars.
M. volgicus, spars., nu sannolikt utrotad.
Raphanus raphanistrum, spars. 1929.
Sisymbrium altissimum, talr.

b) Stränderna invid Ystad:

Arctium nemorosum, Ö. måttl.
Bromus inermis, Ö. måttl.
Lathyrus maritimus, Ö. talr. A.
Lepidium draba, Ö. (exercisfältet) talr.
Medicago falcata × *sativa*. Ö. (— » —) talr.
Onopordum acanthium, Ö. spars. A.
Petasites spurius, V. måttl., Ö. spars. A.
Valerianella olitoria, Ö. talr. A.

c) Sandskogen:

Alyssum calycinum, måttl. A.
Anthriscus cerefolium, spars.
A. vulgaris, invid banvallen: talr., å 3 andra lokaler: spars. A.
Bunias orientalis, större bestånd vid banvallen. A.
Coralliorrhiza trifida. »gamla fåran», måttl. A.
Cicuta virosa, »gamla fåran», måttl. A.
Euphorbia esula, större bestånd vid banvallen.
Festuca capillata, »jaktpaviljongen», talr.
Geranium phaeum. 2 ex. 1931.
Goodyera repens, »gamla fåran», spars.
Hydrocotyle vulgaris, »gamla fåran», talr.
Listera ovata, »gamla fåran», talr.
L. cordata, måttl.
Monotropa hypopitys, spars.
Pyrola umbellata, bestånd om 15 ex.; under de fyra sista åren 2 ex. i blom 1929. Av övriga *Pyrola*-arter finnes flertalet i skogen.
Sarothamnus scoparius, talr. A.

St. Köpinge socken.

a) Nybrofältet (»exercisfält»); fältet delas genom Nybroåns krök i södra och norra delen.

Södra delen.

Aira caryophyllea, måttl. A.
A. præcox, talr.
Cicuta virosa, måttl. A.
Crambe maritima, 1 ex. 1931.
Festuca polesica, talr.
Lotus uliginosus, talr.
Nasturtium officinale, måttl. A.
Orchis morio, måttl.
Ornithopus perpusillus, talr. A. Å ett område (väster om den s. k. Tribundungen) 50 × 150 m är O. numera karaktärsväxten.
Sagittaria sagittifolia, spars.
Scleranthus annuus × *perennis*, måttl.
Trifolium striatum, talr.
[*T. subterraneum* har efter 1927 ej återfunnits.]

Vicia angustifolia, måttl. A.
V. a. var. *Bobartii*, spars. A.
Vulpia dertonensis, talr.

Norra delen:
Glyceria maxima, måttl. A.
Medicago minima, måttl. å en lokal, 10 m i diameter; upptäckt 1930 av skolynglingen ULF KRAGH.

b) Kabusa:
Eryngium maritimum, bestånd om 10 ex. A.
Helianthemum vulgare, spars.
Goodyera repens, »Tosterups skog», spars.
Pyrola umbellata, »Tosterups skog», bestånd om 30 à 40 ex.
Sarothamnus scoparius, talr. A.

c) Köpingebro (1 km norr om stn):
Neslea paniculata, talr.
Petasites albus, spars.
Peucedanum oreoselinum, talr.

d) Fårarp:
Melilotus arvensis, talr.

Fredriksberg, St. Herrestad s:n.

Galinsoga parviflora, talr.

Hammar, Ingelstorp s:n.

Alisma ranunculoides, talr. A.
Veronica triphyllos talr.

Glemminge s:n.

Campanula glomerata, spars.
Falcaria vulgaris, talr. A. Å lokalen, en 4 m hög och c:a 75 m lång sluttning, nu karaktärsväxten.

Kåseberga, Walleberga s:n.

Allium vineale, spars.
Androsace septentrionalis, måttl. A.
Botrychium lunaria, måttl. A.
Cerastium brachypetalum, talr.
Hutchinsia petræa, måttl. A.

Medicago minima, talr. A.
Phleum Boehmeri, måttl. A.
Saxifraga tridactylites, talr. A.

Löderup.

a) Strandbaden:
Allium ursinum, måttl.
Anthericum liliago, måttl.
Astragalus glycyphyllus, måttl.
Koeleria glauca, måttl. A.
Phleum Boehmeri, måttl.
Pulsatilla pratensis, talr.
Veronica triphyllos, talr. A.

b) Sàndhammar udd:
Dianthus arenarius, måttl.
Epipactis latifolia, spars.
Vicia cassubica, ett större bestånd. A.
V. tenuifolia, måttl.

Tosterup s:n.

Corydalis cava, (skogen 1 km söder om slottet) talr.
C. pumila, — » — talr.
Gagea pratensis, — » — spars.
G. spathacea, — » — måttl.
Pulmonaria officinalis maculata, (skogen 1 km söder om slottet) talr.

Benestads backar.

Allium scorodoprasum, måttl. A.
Arabis hirsuta, måttl. A.
Draba muralis (nära Stenbygården) talr.
Erythræa centaurium, måttl. A.
Helianthemum vulgare, talr.
Hypericum acutum, talr. A.
Malva alcea, talr.
Melilotus officinalis, spars. A.
Nepeta cataria, spars.
Orchis Traunsteineri, spars.
O. morio, talr.
Senecio integrifolius, 1929 20, 1931 8 ex. A.
Tetragonolobus siliquosus, talr. A.
Vicia tenuifolia, i större snår. A.

Örup, Benestad s:n.

Cerastium brachypetalum, talr.
Hypericum acutum, måttl.
Vicia cassubica, spars.

Lyckås, Högestad s:n.

Actæa spicata, talr.
Lotus uliginosus, talr.

Fyledal, Baldinge s:n.

Petasites albus, måttl. A.

Kurremölla, Röddinge s:n.

Deschampsia cæspitosa (1,5 m hög, vippa 4 × 2,5 dm), måttl.
Mentha longifolia, talr.
Festuca gigantea, spars. A.

Assmåsa, Söfde s:n.

Limnanthemum nymphæoides, talr. (i början av aug. 1931 inre viken av Snogeholmssjön fylld av blommande ex.).

Söfvestad s:n.

a) Mossen 3 km öster om kyrkan:
Senecio palustris, talr.

b) Krageholm (S. o. V. om sjön):
Alchemilla pratensis, spars.
Carex acutiformis, måttl. A.
Geranium phæum, talr. (dels i torr vallgrav vid slottet, dels vid vägen S. om sjön). A.

Svarte, Balkåkra s:n, (2 km norr om havet):

Fragaria viridis, talr.
Geum rivale × *urbanum* f. *suburbanum*, måttl.
Potentilla fragariastrum, spars. A.

Hörtegården, Ö. Wemmenhög s:n.

Alchemilla pratensis, måttl.
Allium ursinum, talr. A.

Astragalus glycyphyllus, spars. A.
Crepis præmorsa, spars.
Geum rivale × *urbanum* f. *subrivale*, spars.
Malva alcea, måttl. A.
Silaus selinoides, spars.

Hafgård, Gustafs s:n.

Carex divulsa, måttl.
Daphne mezereum, måttl. A.
Lathyrus silvestris, måttl.
Lonicera periclymenum, talr.
Neottia nidus avis, måttl.
Orobus niger, spars. A.
Veronica montana, måttl. A.
Vicia dumetorum, större snår, A.
V. silvatica, talr. A.
Viola mirabilis, måttl.

Silfåkra s:n.

Hydrocharis morsus ranæ, (mosse V. om Krankesjön) talr.
Oenothera biennis, (2 km söder om kyrkan) talr.
Stratiotes aloides, (mosse S. om Krankesjön) talr.
Utricularia vulgaris, (mosse V. om Krankesjön) måttl. A.

Revingehed, Revinge s:n.

Arnoseris minima, måttl.
Erysimum hieracifolium, spars.
Gagea spathacea, måttl.
Monotropa hypopitys var. *glabra*, spars.
Lathyrus palustris, spars.
Leonurus cardiaca, spars.
Scabiosa canescens, måttl.
Thymus serpyllum flor. alb, spars.
Vicia lathyroides, spars.
V. angustifolia segetalis, måttl.
V. a. var. *Bobartii*, spars.
V. villosa, talr.

Harlösa s:n.

a) Hjelmaröd:

Sempervivum tectorum, större bestånd.

b) Skotthusa:
Gentiana baltica, talr.
Orchis latifolia, spars.
Thalictrum aquilegifolium, måttl.
Veronica montana, måttl.

Våmb (Norregård—Nygård).

Euphorbia cyparissias, talr.
Scabiosa canescens, spars. A.

Litteratur.

K. Schnarf: Vergleichende Embryologie der Angiospermen. Berlin, Gebrüder Borntraeger 1931, 254 sid.; pris häftad 33 RM.

Förf. har förut befordrat växtembryologien dels genom egna specialundersökningar, dels genom sin goda handbok »Embryologie der Angiospermen», vilken för ett par år sedan förelåg komplett och ingår i samlingsverket »Handbuch der Pflanzenanatomie» utgivet av K. Linsbauer.

Det arbete, som nu föreligger från förf:ns hand, utgör en komplettering av handboken. Först kommer en kort allmän del (20 sid.), närmast en inledning, en kort och koncis översikt över viktigare embryologiska karaktärer jämte antydan om deras ev. systematiska betydelse. Den speciella delen upptar resten av boken. I den redogöres för vad som är känt om embryologien för varje angiosperm familj. Pollenutveckling, fröämne, arkespor, embryosäckutveckling, befruktning, endosperm- och embryoutveckling jämte ev. förekommande abnorma fortplantningsförhållanden genomgås, litteraturen rörande familjens embryologi, jämte undersökta släkten och arter anföras. Familjerna äro ordnade efter Wettsteins system, och sedan alla familjerna av en ordning behandlats, gives en sammanfattning med fylogenetisk utblick. Den speciella delen är rikt illustrerad, omsorgsfullt gjord och klart framställd.

Artur Håkansson.

Lunds Botaniska Förening.

Kungl. Maj:t har den 10 juni 1932 anvisat 1020 kronor åt Lunds Botaniska Förening för fortsatt utgivande under år 1932 av tidskriften »Botaniska Notiser», med skyldighet för föreningen att av tidskriften för samma år avgiftsfritt överlämna till ecklesiastikdepartementet 1 exemplar, till universitetsbiblioteket i Lund 5 exemplar, till botaniska institutionen vid universitetet i Uppsala 2 exemplar samt till vart och ett av universitetsbiblioteket i Uppsala och kungl. biblioteket 1 exemplar.

Notiser.

Forskarstipendium. Docenten i botanik vid Lunds universitet G. W. Turesson har av universitetskanslern förordnats att 1 juni 1932—31 maj 1933 vara innehavare av ett efter numera professor A. E. Lind ledigt forskarstipendium.

Professuren i systematisk botanik, ärftlighetslära m. m. vid Lantbrukshögskolan i Ultuna. På förslag till nämnda professur har högskolestyrelsen uppsatt professor Nils Heribert Nilsson, Alnarp, docenten G. W. Turesson, Lund, och docenten Ossian Dahlgren, Uppsala, i nu nämnd ordning.

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Lund 1932. Carl Bloms Boktryckeri.